STORMWATER MANAGEMENT REPORT

Data Center at Bell Works
101 Crawfords Corner Road
Block 11, Lot 38.07
Holmdel Township, Monmouth County, New Jersey

Prepared For:

Applicant
Terna Infrastructure USA, Inc.
1270 Avenue of the Americas
New York, NY 10020

Prepared By:

Langan Engineering & Environmental Services, LLC
300 Kimball Drive
Parsippany, New Jersey 07054

Leonard D. Savino

Leonard D. Savino, PE
New Jersey P.E. License Number GE-39238

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LANGAN

300 Kimball Drive Parsippany, NJ 07054 T: 973.560.4900 F: 973.560.4901 www.langan.com

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EXECUTIVE SUMMARY

The proposed stormwater management and conveyance systems for a proposed Data Center at Bell Works project has been designed in accordance with the New Jersey Department of Environmental Protection stormwater rules (NJAC 7:8), Freehold Soil Conservation District, and the Holmdel Township stormwater regulations (§30-157).

The proposed development includes the following improvements:

- Demolition of two existing buildings and associated site improvements;
- A new 2-story data center with an at-grade building footprint of 53,860 square feet;
- New at-grade parking areas, driveways and landscape areas;
- Stormwater management system consisting of three small-scale bioretention basins, manufactured treatment devices, and a new stormwater conveyance system; and,
- Utility infrastructure to support the development.

The proposed development disturbs over 1 acre of land. Therefore, this project is defined as a "major development" per the municipal and NJDEP stormwater rules, and the proposed stormwater design is required to address stormwater quantity, stormwater quality, and groundwater recharge through the use of green infrastructure best management practices (BMPs). The proposed stormwater management approach consists of the following:

- Three small-scale bioretention basins to reduce peak flow rates by 50%, 25%, and 20% for the 2-, 10-, and 100-year current and future storm events, respectively;
- Four manufactured treatment devices designed in-series with three small-scale bioretention basins to provide 96% TSS removal for all new regulated motor vehicle surfaces; and,
- A subsurface collection system consisting of catch basins, manholes, and pipes designed to convey stormwater runoff from the 100-year storm.

The project results in a net decrease of 1.27 acres of regulated motor vehicle surface, however, water quality treatment for 95% TSS removal must be provided since stormwater runoff from the project discharges to the riparian zone of Hop Brook tributary, which is classified as a Category 1 Water by the NJDEP. The project does not include a groundwater recharge component because the site contains multiple areas of groundwater contamination. However, the project will result in an increase in the site's annual groundwater recharge volume due to the net decrease of 0.86 acres of impervious surface.

By implementing the stormwater management measures identified above and reviewing the results of the detailed calculations provided in this report, the stormwater management design is in accordance with the municipal and NJDEP stormwater requirements.

1.0 INTRODUCTION

This report addresses the engineering design of the stormwater management and conveyance system for the proposed Data Center at Bell Works project in Holmdel Township, Monmouth County, New Jersey. The proposed stormwater management system is designed in accordance with:

- New Jersey Department of Environmental Protection (NJDEP) stormwater rules (NJAC 7:8);
- New Jersey Stormwater Best Management Practices (BMP) Manual;
- New Jersey Standards for Soil Erosion and Sediment Control; and,
- Holmdel Township Stormwater Control Ordinance (§ 30-157).

2.0 PROJECT DESCRIPTION

2.1 Existing Site Description

The Data Center at Bell Works project is located at the southwest corner of the Bell Works campus at 101 Crawfords Corner Road in Holmdel Township, Monmouth County, New Jersey. The site is located at the southwest corner of a 100-acre property defined as Block 11, Lot 38.07 (see Figure 1 – Site Location Map).

Site features consist of six buildings, an electrical substation, at-grade parking areas and driveways, maintained lawn areas, and wooded areas. The site is bound by residential properties on the north, Bell Laboratories Road on the northeast, Hop Brook and its associated tributaries and wetlands on the west, south, and east.

The site topography is moderately sloped with existing surface elevations ranging from elevation 125 (NAVD 1988) at the northern property boundary to elevation 80 at the convergence of Hop Brook tributaries with Hop Brook. Slopes within the site vary from less than 5% in some areas to greater than 20% in other areas. Stormwater runoff flows to a tributary of Hop Brook on the south and a separate tributary of Hop Brook on the east, which both ultimately converge with the main channel of Hop Brook due southeast of the project.

Stormwater runoff flows to a tributary of Hop Brook on the south and a separate tributary of Hop Brook on the east, which both ultimately converge with the main channel of Hop Brook along the southern property boundary.

2.2 Subsurface Conditions

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey (see Figure 2 – NRCS Web Soil Survey Map), the soils in the project area consist of the following:

- Freehold sandy loam, 2 to 5 percent slopes; Hydrologic Soil Group (HSG) B;
- Humaquepts, 0 to 3 percent slopes, frequently flooded; Hydrologic Soil Group (HSG) A/D; and,
- Urban Land; Hydrologic Soil Group (HSG) not rated.

For Freehold sandy loam, the Web Soil survey reports a depth to groundwater as more than 80 inches. For Humaquepts, the Web Soil Survey reports a depth to groundwater as 0 to 12 inches.

Humaquepts were conservatively classified as HSG 'A'. In accordance with Chapter 12 of the BMP manual, Urban Land soils were classified as HSG "A" in the pre-developed conditions and HSG "D" in the post-developed conditions.

Langan performed a preliminary geotechnical investigation in April 2026 consisting of five test pits within the limits of the proposed bioretention basins. According to the results of the borings and test pits performed at the site, the subsurface conditions generally consisted of surficial materials underlain by natural silty sand and clayey sand.

Groundwater was encountered approximately 12 to 17 feet below the surface and signs of mottling were encountered approximately 7 to 12 feet below the surface. In accordance with Chapter 12 of the BMP Manual, the seasonal high water table elevation was defined as the observed top of soil mottling layer. Refer to Appendix F for more information.

2.3 Floodplain

Based on a review of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Monmouth County, Community Map Number 34025C0156F, panel 156 of 457, effective date 25 September 2009, the southern portion of the site lies within the fluvial flood hazard area of Hop Brook (formerly Ramanessin Brook), which has a 1% annual chance (100-year) base flood elevation ranging from elevation 85 to elevation 91.

The eastern portion of the site is bound by a tributary to Hop Brook, which is defined as a regulated water pursuant to N.J.A.C. 7:13-2.2; however, no FEMA or NJDEP flood mapping exists for this watercourse. See Figure 3 – FEMA Flood Insurance Rate Map.

The Flood Hazard Area associated with these regulated waters was determined using Method 3 for the southern tributary (FEMA 100-year flood elevation of Hop Brook + 3 feet) and Method 5 for the eastern tributary (approximation method). Improvements within the flood hazard area are limited to two new stormwater outfalls.

2.4 Proposed Development

The proposed development will consist of the following improvements:

- Demolition of two existing buildings and associated site improvements;
- A new 2-story data center with an at-grade building footprint of 53,860 square feet;
- New at-grade parking areas, driveways and landscape areas;
- Stormwater management system consisting of three small-scale bioretention basins, manufactured treatment devices, and a new stormwater conveyance system; and,
- Utility infrastructure to support the development.

The following table summarizes the changes in impervious and motor-vehicle surface between existing and proposed conditions for the 20.81-acre project area:

Table 1 – Surface Type Comparison

Surface Type	Existing	Proposed	Change
Impervious Surface	6.09 Acres (29%)	5.23 Acres (25%)	-0.86 Acres (-4%)
Motor-Vehicle Surface	3.58 Acres (17%)	2.31 Acres (11%)	- 1.27 Acres (-6%)

3.0 STORMWATER MANAGEMENT

The proposed project results in a disturbance of greater than 1 acre. Therefore, this project is considered a major development as defined by the NJDEP stormwater rules (NJAC 7:8) and the Holmdel Township stormwater regulations. Projects that qualify as major developments are required to design stormwater management systems that address:

- Stormwater quantity;
- Stormwater quality;
- Groundwater recharge; and,
- Nonstructural measures.

The following sections provide additional detail regarding each of the stormwater-design regulations.

3.1 Stormwater Quantity Management

Design Criteria

The proposed stormwater management design complies with NJAC 7:8-5.6(b)3, which requires that all developments increasing the proposed peak rates of runoff and volume of runoff post-development or changing the timing of the peak runoff rates must provide reductions for the existing peak runoff rates for the current and future 2-year (50%), 10-year (25%) and 100-year (20%) storms under proposed conditions. These reductions only apply to the parts of the site on which the development is proposed.

The following current and future storms were analyzed using the NOAA Precipitation Data and the current and future adjustment factors required per N.J.A.C. 7:8-5.7:

Table 2 - Current Precipitation Adjustment

Frequency of Storms	NOAA Rainfall Depth (inches)	Current Precipitation Adjustment Factor	Current Rainfall Depth (inches)
2-year	3.35	1.00	3.35
10-year	5.16	1.01	5.21
100-year	8.78	1.02	8.96

Table 3 – Future Precipitation Adjustment

Frequency of Storms	NOAA County Rainfall Depth (inches)	Future Precipitation Adjustment Factor	Future Rainfall Depth (inches)
2-year	3.35	1.19	3.99
10-year	5.16	1.19	6.14
100-year	8.78	1.26	11.06

Rainfall depths were taken from published NOAA rainfall frequency records and are shown on Figure 4 - NOAA Atlas 14 24-Hour Rainfall Data. Based on the project location, the stormwater analysis uses a 24-hour NOAA Type D cumulative rainfall distribution. Refer to Figure 5 – NOAA Type D Cumulative Rainfall Distribution.

Design Methodology

This study was prepared using methods contained in the USDA Natural Resource Conservation Service National Engineering Handbook (NEH), Part 630 - Hydrology to analyze the pre- and post-development rainfall runoff rates and volumes. The watershed was simulated as a series of contributing subareas, channel reaches, and inflow and outflow structures. A value for area, curve number (CN), and time of concentration (Tc) were calculated for each contributing subarea.

The curve number (CN) is a land-sensitive coefficient that determines the relationship between total rainfall depth and direct storm runoff. Based on the coverage of soil groups and land use in the watershed, separate CN were determined for impervious and pervious areas for each sub-area for existing and proposed conditions. To calculate the CN, the soils within the watershed are divided into hydrologic soil groups (HSG) A, B, C and D using published available resources such as the USDA's Web Soil Survey. The HSG determines the soils runoff potential with "A" soils having the lowest runoff potential and "D" soils having the greatest runoff potential. As documented in Section 2.2 above, Freehold sandy loam soils are classified as HSG "B", Humaquepts are classified as HSG "A", and Urban Land soils are classified as HSG "A" in the existing conditions and HSG "D" in the proposed conditions.

The time of concentration (Tc) is defined as the time for runoff to travel from the hydraulically most distant point in the watershed to a point of interest. Values of the time of concentration were determined for existing and proposed conditions based on land cover and slope of the flow path using methods outlined in NEH Part 630. The minimum Tc used in this analysis is two minutes due to software limitations.

Existing Runoff Discharges

The existing site was divided into two watersheds based on existing drainage patterns and discharge points. See Drawing DA101 – Existing Watershed Area Map for additional details on the individual watersheds. The existing flows for the 2-year, 10-year and 100-year storm events must be reduced by 50%, 25% and 20%, respectively, to meet the stormwater regulations for water-quantity controls. The required reductions are only applied to the disturbed/developed parts of the project. Therefore, the "allowable" flows at the analysis point are a combination of the flows from undisturbed watershed areas and the reduced flows from the disturbed watershed areas. Each watershed is summarized below:

Watershed 1 conveys runoff from impervious surfaces, buildings, maintained lawn areas, and wooded areas. Runoff flows as overland flow and piped flow that ultimately discharge to Hop Brook tributary and its associated wetlands at the eastern site boundary.

Watershed 2 also conveys runoff from impervious surfaces, buildings, maintained lawn areas, and wooded areas. Runoff flows as overland flow and piped flow that ultimately discharge to a separate tributary of Hop Brook and its associated wetlands at the southern site boundary.

Allowable peak discharge rates are summarized in Table 4 (for current and future rainfall data) below:

Table 4 –Allowable Peak Discharges – Current and Future Rainfall

Watershed	Area (ac)	2-Year (cfs)		10-Year (cfs)		100-Year (cfs)	
	Existing	Current	Future	Current	Future	Current	Future
Watershed 1 (D)	2.78	2.36	2.87	5.87	7.09	11.65	14.79
Watershed 1 (U)	3.61	0.19	0.24	0.95	1.83	5.48	8.78
Watershed 1	6.39	2.55	3.10	6.41	8.21	15.49	21.21
Watershed 2 (D)	4.28	4.16	5.07	10.31	12.42	20.21	25.51
Watershed 2 (U)	10.14	2.96	3.75	5.85	8.38	16.65	24.79
Watershed 2	14.42	7.03	8.68	15.78	19.93	34.39	46.15

Notes:

1. *Total flows have been hydraulically combined and may not reflect the direct addition of peak discharge rates.*
2. *50%, 25%, and 20% reductions applied for the current and future 2-, 10-, and 100-year storms, respectively for disturbed areas.*

Refer to Appendix A for Tc calculation sheets, CN calculation sheets and supporting hydrologic calculations for the existing runoff analysis.

Proposed Watershed Areas

The proposed development has been modeled as two watersheds similar to the existing conditions. All watersheds were divided into subwatershed areas, which correlate to the disturbed (Detained + Undetained) and undisturbed areas. See Drawing DA102 – Proposed Watershed Area Map for additional details on the individual watersheds. Each watershed is summarized below:

Watershed 1A conveys runoff from impervious surfaces, lawn areas, and wooded areas through a stormwater conveyance system to a small-scale bioretention basin (Basin 2). Basin 2 provides water quality treatment and peak flow reductions. Runoff is slowly discharged from the basin to Hop Brook tributary and its associated wetlands at the eastern site boundary.

Watershed 1B conveys runoff from impervious surfaces, lawn areas, and wooded areas. Runoff flows as overland flow that discharges to Hop Brook tributary and its associated wetlands at the eastern site boundary.

Watershed 2A conveys runoff from impervious surfaces, lawn areas, and wooded areas through a stormwater conveyance system to a small-scale bioretention basin (Basin 1). Basin 1 provides water quality treatment and peak flow reductions. Runoff is slowly discharged from the basin to Hop Brook tributary and its associated wetlands at the southern site boundary.

Watershed 2B conveys runoff from impervious surfaces and lawn areas through a stormwater conveyance system to a small-scale bioretention basin (Basin 3). Basin 3 provides water quality treatment and peak flow reductions. Runoff is slowly discharged from the basin to Hop Brook tributary and its associated wetlands at the southern site boundary.

Watershed 1B conveys runoff from impervious surfaces, lawn areas, and wooded areas. Runoff flows as overland flow that discharges to Hop Brook tributary and its associated wetlands at the southern site boundary.

The proposed peak flow rates for the site are summarized in Table 5 (for current and future rainfall data) below:

Table 5 – Proposed Peak Discharges – Current and Future Rainfall

Watershed	Area (ac)	2-Year (cfs)		10-Year (cfs)		100-Year (cfs)	
	Existing	Current	Future	Current	Future	Current	Future
Watershed 1A	1.94	1.59	2.09	2.72	3.16	4.67	6.18
Watershed 1B	4.03	0.30	0.38	1.24	2.30	6.56	10.31
Watershed 1	2.50	1.83 *(2.55)*	2.44 *(3.10)*	3.94 *(6.41)*	5.46 *(8.21)*	11.19 *(15.49)*	16.46 *(21.21)*
Watershed 2A	1.83	4.17	1.60	7.34	2.43	14.43	5.22
Watershed 2B	10.51	0.73	0.94	1.23	1.42	2.24	2.67
Watershed 2C	14.84	3.33	4.25	6.62	9.37	18.14	26.71
Watershed 2	1.94	4.05 *(7.03)*	6.21 *(8.68)*	8.83 *(15.78)*	12.99 *(19.93)*	23.46 *(34.39)*	34.41 *(46.15)*

Notes:

1. *Total flows have been hydraulically combined and may not reflect the direct addition of peak discharge rates.*
2. *Allowable peak discharge rates shown in italics.*

According to the results summarized in Tables 5, the proposed discharges do not exceed the allowable discharges for this project. Refer to Appendix B for Tc calculation sheets, CN calculation sheets and supporting hydrologic calculations for the proposed runoff analysis.

Proposed Bioretention Basins

Three small-scale bioretention basins with underdrains have been designed to reduce peak flows and provide water-quality benefits. The basins comply with the maximum drain time of 72 hours after the end of a storm event, a maximum contributory drainage area of 2.5 acres, a minimum separation of 1 foot from the seasonal high-water table, and a maximum storage depth of 1 foot during the NJDEP water-quality design storm. The NJDEP water-quality design storm is defined as 1.25 inches of rain falling over two hours (refer to Figure 6 – NJDEP Water Quality Design Storm). If a basin's primary outfall fails, an earthen or concrete emergency spillway is designed to convey the peak, unattenuated 100-year future storm inflow with non-eroding velocities and providing at least 1 foot of separation 100-year storm elevation in the basin and the top of basin berm elevation. Supporting calculations are provided in Appendix B.

Profile pits performed in April 2026 within the footprint of each basin to determine the seasonal high water table elevation in accordance with Chapter 12 of the BMP manual. As documented in Appendix F, groundwater was encountered approximately 12 to 17 feet below the surface and signs of mottling were encountered approximately 7 to 12 feet below the surface. In accordance with Chapter 12 of the BMP Manual, the seasonal high water table elevation was defined as the observed top of soil mottling layer.

Parameters for each bioretention basin are summarized below.

Bioretention Basin 1

Bioretention Basin 1 is a small-scale bioretention basin that contains approximately 24,800 cubic feet (0.57 acre-feet) of storage with a maximum storage depth of 3.5 feet. The basin has a bottom surface elevation of 103 and is designed with a 6-inch perforated HDPE underdrain. Discharge from the basin will be through an outlet control structure and 18-inch HDPE pipe to the proposed conveyance system that ultimately discharges to Hop Brook tributary and its associated wetlands at the southern site boundary. Refer to Drawing CS504 and Table 6 below for additional information.

Table 6 – Bioretention Basin 1 Design Summary

Storm Frequency	Rainfall Depth (inches)	Runoff Volume (cu ft)	Peak Discharge Rate (cfs)	Peak Water Surface Elevation (ft)
Water Quality	1.25	4,462	0.00	103.79
2-Year Current	3.35	15,633	1.28	104.23
10-Year Current	5.21	28,110	2.10	104.77
100-Year Current	8.96	56,625	4.15	105.86
2-Year Future	3.99	19,711	1.60	104.41
10-Year Future	6.14	34,868	2.43	105.06
100-Year Future	11.06	73,654	5.22	106.45

Contributory Drainage Area (Acres)	Water-Quality Design Storm Depth (ft)	100-Year Future Storm Drain Time (hours)	SHWT Elevation (ft)	Bottom of Gravel Layer Elevation (ft)	Separation from bottom of BMP to SHWT (ft)
1.33	0.79	31.6	96.5	99.5	3

Bioretention Basin 2

Bioretention Basin 2 is a small-scale bioretention basin that contains approximately 17,300 cubic feet (0.40 acre-feet) of storage with a maximum storage depth of 2.5 feet. The basin has a bottom surface elevation of 102.5 and is designed with a 6-inch perforated HDPE underdrain. Discharge from the basin will be through an outlet control structure and 18-inch HDPE pipe to the proposed conveyance system that ultimately discharges to Hop Brook tributary and its associated wetlands at the eastern site boundary. Refer to Drawing CS504 and Table 7 below for additional information.

Table 7 – Bioretention Basin 2 Design Summary

Storm Frequency	Rainfall Depth (inches)	Runoff Volume (cu ft)	Peak Discharge Rate (cfs)	Peak Water Surface Elevation (ft)
Water Quality	1.25	4,202	0.00	103.19
2-Year Current	3.35	14,136	1.59	103.53
10-Year Current	5.21	24,556	2.72	103.87
100-Year Current	8.96	47,621	4.67	104.56
2-Year Future	3.99	17,635	2.09	103.66
10-Year Future	6.14	30,220	3.16	104.06
100-Year Future	11.06	61,546	6.18	104.97

Contributory Drainage Area (Acres)	Water-Quality Design Storm Depth (ft)	100-Year Future Storm Drain Time (hours)	SHWT Elevation (ft)	Bottom of Gravel Layer Elevation (ft)	Separation from bottom of BMP to SHWT (ft)
1.90	0.69	27.1	98	99	1

Bioretention Basin 3

Bioretention Basin 3 is a small-scale bioretention basin that contains approximately 27,700 cubic feet (0.64 acre-feet) of storage with a maximum storage depth of 2.5 feet. The basin has a bottom surface elevation of 102.5 and is designed with a 6-inch perforated HDPE underdrain. Discharge from the basin will be through an outlet control structure and 18-inch HDPE pipe to the proposed conveyance system that ultimately discharges to Hop Brook tributary and its associated wetlands at the southern site boundary. Refer to Drawing CS504 and Table 8 below for additional information.

Table 8 – Bioretention Basin 3 Design Summary

Storm Frequency	Rainfall Depth (inches)	Runoff Volume (cu ft)	Peak Discharge Rate (cfs)	Peak Water Surface Elevation (ft)
Water Quality	1.25	4,797	0.00	102.99
2-Year Current	3.35	15,436	0.73	103.34
10-Year Current	5.21	25,963	1.23	103.78
100-Year Current	8.96	48,568	2.24	104.53
2-Year Future	3.99	18,979	0.94	103.49
10-Year Future	6.14	31,440	1.42	103.99
100-Year Future	11.06	61.645	2.67	104.97

Contributory Drainage Area (Acres)	Water-Quality Design Storm Depth (ft)	100-Year Future Storm Drain Time (hours)	SHWT Elevation (ft)	Bottom of Gravel Layer Elevation (ft)	Separation from bottom of BMP to SHWT (ft)
0.88	0.49	31.0	98	99	1

3.2 Stormwater Quality Standards

Design Criteria

The NJDEP and Holmdel Township stormwater regulations require water-quality measures if a net increase in excess of ¼ acre of regulated motor-vehicle surface area is proposed. The proposed improvements will result in a 1.27 -acre net decrease in regulated motor-vehicle surface area.

Hop Brook is classified as a Category 1 water by NJDEP, which results in the regulated water having a 300-foot riparian zone. Per N.J.A.C. 7:13-11.2(j)ii, where runoff from the water quality design storm cannot practicably be infiltrated outside of the 300-foot riparian zone and/or discharged outside of the 300-foot riparian zone, 95% TSS removal shall be provided.

Water Quality Design

To satisfy the water-quality requirement, four Contech Rapterra manufactured treatment devices are proposed in series with three proposed bioretention basins to provide a weighted TSS removal rate of 96% for all new regulated motor vehicle surfaces. A further description of the water-quality design for the proposed manufactured treatment devices is provided in Tables 9 and 10 below. Detailed calculations are provided in Appendix B and on Drawing DA104 - Treatment Device Drainage Area Map

Table 9 – BMP In Series TSS Rate Calculation

Rapterra MTD TSS Removal Rate (A)	Bioretention Basin TSS Removal Rate (B)	Weighted TSS Removal Rate (R) = A + [B –(A X B)] / 100]
80%	80%	96%

Table 10 – Manufactured Treatment Device Water Quality Design Summary

Water Quality Unit	Maximum Allowable Treatment Flow Rate (cfs)	Proposed Peak Flow Rate (Water-Quality Storm) (cfs)	Maximum Allowable Drainage Area (acres)	Proposed Drainage Area (acres)
Contech Rapterra Peak Diversion Vault 16′ by 8′ (WQ-101)	2.17	1.57 *(less than 2.17 allowed)*	1.19	1.11 *(less than 1.19 allowed)*
Contech Rapterra Peak Diversion Vault 14′ by 8′ (WQ-102)	2.42	1.45 *(less than 1.82 allowed)*	1.34	0.96 *(less than 1.34 allowed)*
Contech Rapterra Peak Diversion Vault 12′ by 6′ (WQ-103)	1.30	1.24 *(less than 1.30 allowed)*	0.72	0.45 *(less than 0.72 allowed)*
Contech Rapterra Peak Diversion Vault 10′ by 6′ (WQ-104)	1.04	0.88 *(less than 1.04 allowed)*	0.57	0.37 *(less than 0.57 allowed)*

Trash and Waste

In order to prevent trash and floatables from entering the stormwater conveyance system, all Type B catch basin will be fitted with "Eco" curb pieces. Smaller openings on the curb pieces prevent cans and plastic bottles from entering catch basins. The curb piece and grate also educate the public to the detriments of pollution with messages permanently cast into their surfaces stating, "DUMP NO WASTE DRAINS TO WATERWAYS."

Grates of the proposed nyloplast structures have small inlet openings that prevent the collection of large trash and debris from entering the storm conveyance system. On-going maintenance personnel will collect litter throughout the site.

Any bioretention basin outlet control structures will be equipped with trash racks. Any debris or trash that enters the stormwater conveyance systems will be trapped in the stormwater management facilities, where it would be removed as part of the maintenance program.

3.3 Groundwater Recharge

Groundwater Recharge Design

The project will result in an increase in the site's annual groundwater recharge volume due to the net decrease of 0.86 acres of impervious surface.

Per N.J.A.C. 7:8-5.4(b)(3)i., stormwater from areas of high pollutant loading shall not be recharged. The project does not include a groundwater recharge component because the site contains multiple areas of groundwater contamination that could further exacerbate the existing groundwater contamination impacts. Refer to Appendix D for a letter from the Licensed Site Remediation Professional addressing the impacts of groundwater recharge on the ongoing groundwater remediation.

3.4 Non-Structural Stormwater Management Strategies

Nonstructural strategies were analyzed and implemented to the maximum extent practical for this project.

As per NJAC 7:8, there are nine nonstructural strategies and below is a summary of how these strategies were implemented in the design of the stormwater management system:

1. Protect areas that provide water quality or are susceptible to erosion.
    a. Soil erosion control measures, such as silt fence, are proposed to contain sediment loss during construction. Areas of disturbance not to be paved shall be seeded or otherwise landscaped.
    b. Development minimizes the disturbance and clearing of wooded areas.
    c. In addition, water quality benefits are provided through the proposed use of manufactured treatment devices and bioretention systems.
2. Minimize, break up and/or disconnect impervious surfaces.
    a. The site development plan includes proposed impervious surfaces, such as roadway, roof, and sidewalk areas. The flow from the impervious surfaces is broken up and disconnected to the greatest extent practicable.
3. Maximize protection of natural drainage features and vegetation.
    a. No natural drainage features exist within the disturbed area. All portions of the site outside of the limit of disturbance will be protected.
    b. Development minimizes the disturbance and clearing of wooded areas.
4. Minimize decrease in time of concentration.
    a. The reduction in the time of concentration has been minimized by directing the stormwater through the stormwater BMPs, which increases the time it takes for the stormwater to reach the points of analyses.
5. Minimize land disturbance, clearing and grading.
    a. Land disturbance is limited to the area of the site required to construct the project.
6. Minimize soil compaction.
    a. The existing features are primarily compacted soil and paved areas. Minimization of soil compaction has been provided to the greatest extent possibly by using light-weight equipment.
7. Provide low maintenance vegetation.
    a. Native vegetation has been proposed for landscaped areas.
8. Provide vegetated conveyance systems.
    a. Discharge points from the site will be stabilized in accordance with the NJ

Standards for Soil Erosion and Sediment Control. Open-channel conveyance systems are not feasible for this development.

9. Provide pollutant source controls.
    a. 96% TSS removal is attained through the use of bioretention systems and manufactured treatment devices. All stormwater management facilities will receive regular inspection and maintenance.

3.5 Proposed Stormwater Conveyance

Design Criteria

The on-site subsurface storm-sewer collection system is designed to convey the 100--year storm

Design Methodology

The storm-sewer system was analyzed using the Rational Method for estimating runoff for the 100-year design storm. The site was divided into subareas, each contributing runoff to an individual catch basin inlet or roof drain. Values for area, time of concentration, and runoff coefficient (C) were calculated for each contributing subarea (refer to Drawing DA103 – Inlet Catchment Area Map).

Values of time of concentration were chosen based on land cover and slope of the flow path from the hydraulically most distant point in the subarea to the appropriate inlet. In accordance with Chapter 5 of the BMP Manual, the minimum time of concentration used for Rational Method computations is ten minutes. The average runoff coefficient is the ratio relating the amount of runoff to the amount of precipitation receive. Runoff coefficients were based on values included on Figure 8 – Runoff Coefficients. Rainfall intensities were taken from the intensity-duration-frequency curve for Holmdel Township (refer to Figure 9 - NOAA IDF Data).

Storm Collection System

The runoff from the site will be collected using an underground storm system consisting of catch basins, manholes and pipes. The pipes were appropriately sized so the hydraulic grade line (HGL) elevation did not exceed the rim/grate elevations at each structure. Detailed design calculations for the on-site stormwater collection system are included in Appendix C of this report.

4.0 SOIL EROSION AND SEDIMENT CONTROL

Soil-erosion and sediment-control measures have been designed and located within the project site to minimize the amount of sediment carried by stormwater runoff during and after construction of the project. The soil-erosion and sediment-control design was completed in accordance with the NJ Standards for Soil Erosion and Sediment Control and include the following design measures:

- Inlet protection;
- Silt fence;
- Construction entrances;
- Sediment basins; and,
- Conduit outlet protection (scour holes).

Refer to Appendix E for supporting calculations.

5.0 Stormwater Maintenance Plan

The stormwater management systems for the proposed development area is intended to collect, convey, treat, and detain the stormwater runoff. Regular maintenance procedures are required to verify the consistent and proper operation of the stormwater management facilities and prevent problems and malfunctions. The maintenance program provides stormwater maintenance procedures for the site, which can be found under a separate cover.

6.0 CONCLUSION

The proposed peak stormwater discharges from the site will be reduced below the existing 2-, 10- and 100-year current and future storm peak discharges, respectively, through the three proposed small-scale bioretention basins. The project will result in a net decrease of 1.27 acres of regulated motor vehicle surface. Four manufactured treatment devices designed in-series with three small-scale bioretention basins will provide 96% TSS removal for all new regulated motor vehicle surfaces. The project will result in an increase in the site's annual groundwater recharge volume due to the net decrease of 0.86 acres of impervious surface. The proposed stormwater conveyance systems have been designed to safely and effectively convey the 100-year storm. Therefore, the engineering design of the stormwater management systems has been performed in accordance with the municipal and NJDEP stormwater rules.

7.0 REFERENCES

1. Hydrology Studio 2026 v 3.0.0.44.

2. Stormwater Studio 2026 v 3.0.0.42.

3. National Engineering Handbook Part 630 Hydrology, USDA Natural Resources Conservation Service Publication, last revised March 2020.

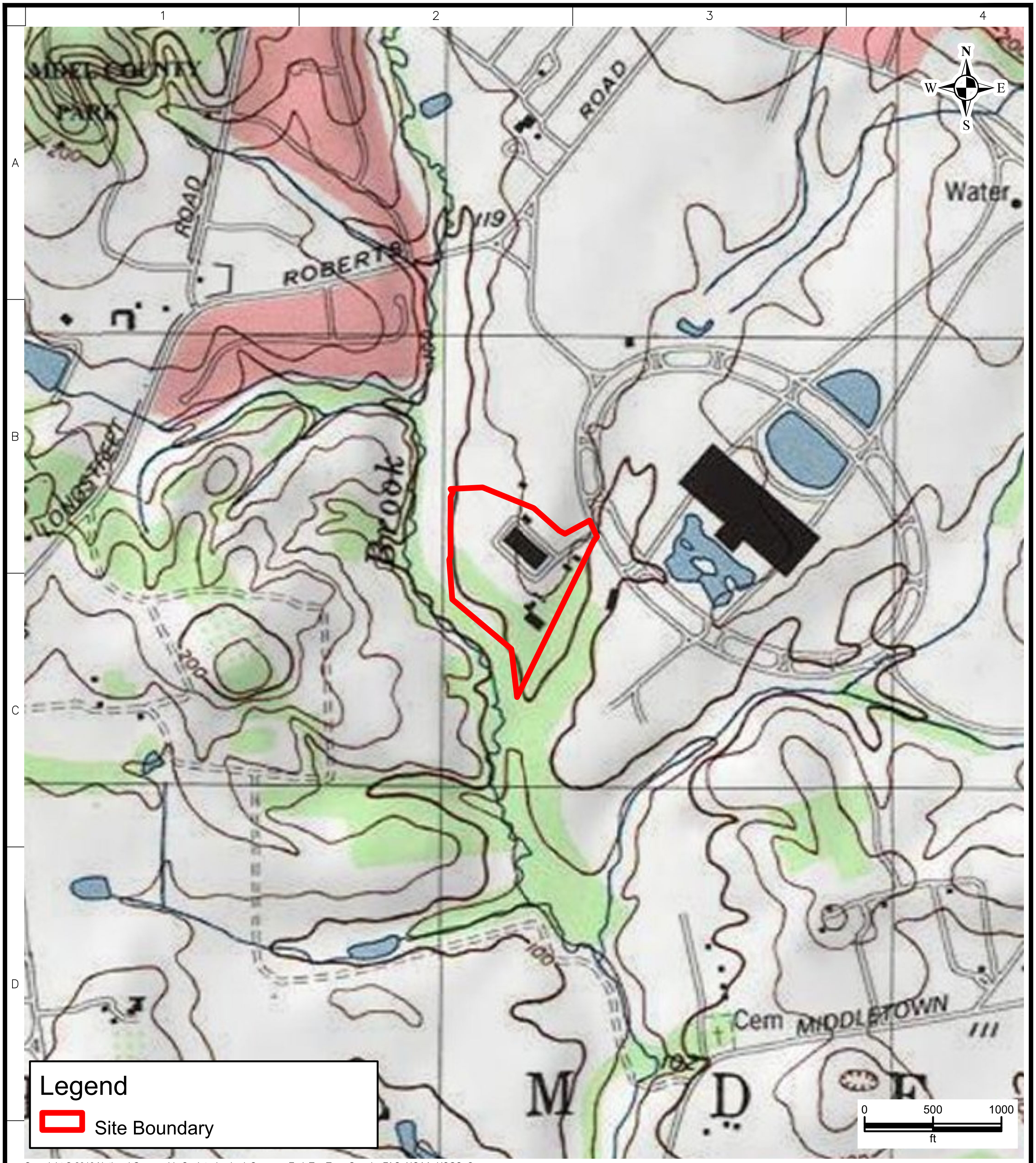
4. New Jersey Stormwater Best Management Practices Manual, New Jersey Department of Environmental Protection, Division of Watershed Management, April 2004, revised July 2023.

5. New Jersey Stormwater Management Rules (N.J.A.C. 7:8), last revised July 2023.

6. Holmdel Township Stormwater Control Ordinance (§ 30-157).

7. The Standards for Soil Erosion and Sediment Control in New Jersey, New Jersey Department of Agriculture, revised July 2017.

FIGURES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LANGAN

Project No. 102054601

LANGAN
Langan Engineering and
Environmental Services, LLC.

300 Kimball Drive
Parsippany, NJ 07054

T: 973.560.4900 F: 973.560.4901 www.langan.com
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Project

DATA CENTER AT BELL WORKS

BLOCK No. 11, LOT No. 38.07
HOLMDEL TOWNSHIP
MONMOUTH COUNTY NEW JERSEY

Drawing Title

SITE LOCATION MAP

Project No.	102054601
Date	06/29/2026
Drawn By	SK
Checked By	LDS

Drawing No.

FIG.1

Sheet **1** of **9**

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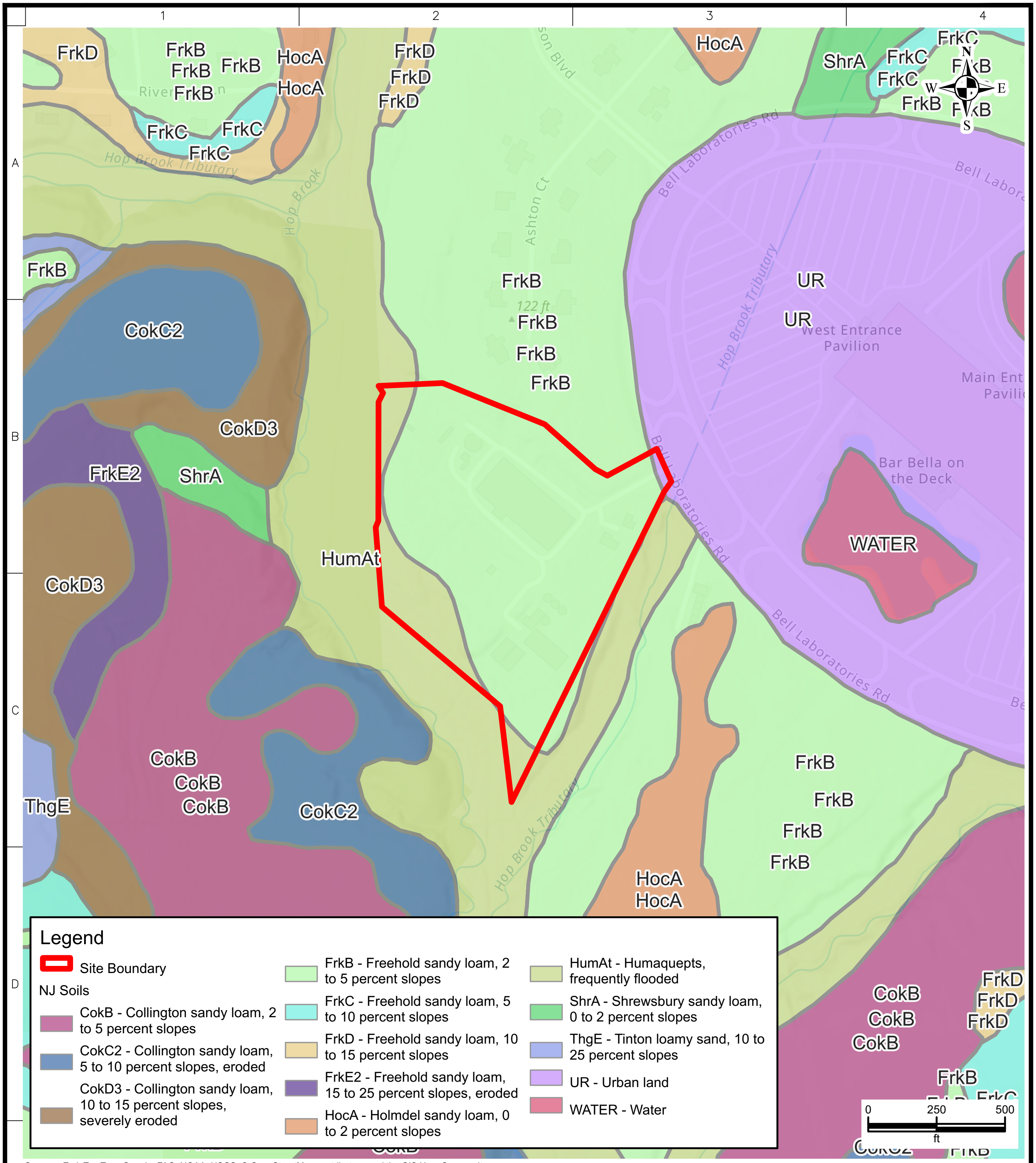
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Hop Brook Tributary
West Entrance Pavilion
Main Ent Pavili
Bar Bella on the Deck
WATER
Bell Laboratories Rd
Bell Laboratories Rd
Be
CokB
CokB
CokB
CokC2
ThgE
Hop Brook Tributary
HocA
HocA
FrkB
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FrkB
FrkB
CokB
CokB
CokB
FrkD
FrkD
FrkD
FrkB
FrkC
CokC2
FrkB
Legend
🟥 Site Boundary
NJ Soils
CokB - Collington sandy loam, 2 to 5 percent slopes
CokC2 - Collington sandy loam, 5 to 10 percent slopes, eroded
CokD3 - Collington sandy loam, 10 to 15 percent slopes, severely eroded
FrkB - Freehold sandy loam, 2 to 5 percent slopes
FrkC - Freehold sandy loam, 5 to 10 percent slopes
FrkD - Freehold sandy loam, 10 to 15 percent slopes
FrkE2 - Freehold sandy loam, 15 to 25 percent slopes, eroded
HocA - Holmdel sandy loam, 0 to 2 percent slopes
HumAt - Humaquepts, frequently flooded
ShrA - Shrewsbury sandy loam, 0 to 2 percent slopes
ThgE - Tinton loamy sand, 10 to 25 percent slopes
UR - Urban land
WATER - Water
0
250
500
ft

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS, FEMA; NJ Department of Environmental Protection (NJDEP), Office of Information Resources Management (OIRM), Bureau of Geographic Information Systems (BGIS)

LANGAN

Project No. 102054601

LANGAN

Langan Engineering and
Environmental Services, LLC.

300 Kimball Drive
Parsippany, NJ 07054

T: 973.560.4900 F: 973.560.4901 www.langan.com
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Drawing Title

NRCS WEB SOIL SURVEY MAP

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06/29/2026

Drawn By
SK

Checked By
LDS

Drawing No.

FIG. 2

Sheet 2 of 9

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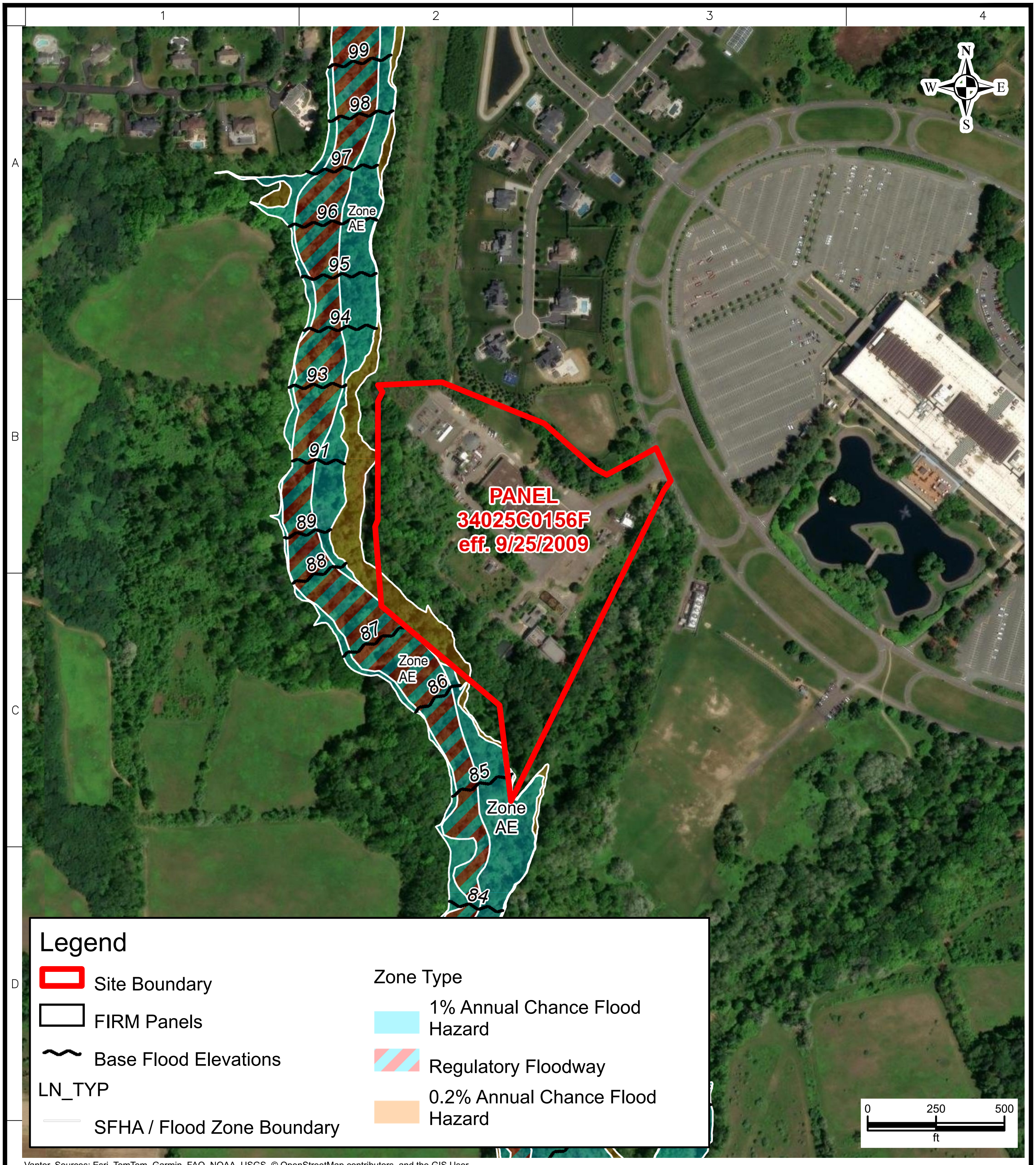
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Zone AE
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eff. 9/25/2009
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Site Boundary
FIRM Panels
Base Flood Elevations
LN_TYP
SFHA / Flood Zone Boundary
Zone Type
1% Annual Chance Flood Hazard
Regulatory Floodway
0.2% Annual Chance Flood Hazard
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ft

Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS, FEMA; FEMA, FEMA RiskMap CDS

LANGAN

Project No. 102054601

LANGAN
Langan Engineering and
Environmental Services, LLC.

300 Kimball Drive
Parsippany, NJ 07054

T: 973.560.4900 F: 973.560.4901 www.langan.com
NJ CERTIFICATE OF AUTHORIZATION NO. 24GA27996400

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DATA CENTER AT BELL WORKS

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MONMOUTH COUNTY NEW JERSEY

Drawing Title

FEMA FLOOD INSURANCE RATE MAP

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Checked By
LDS

Drawing No.

FIG. 3

Sheet 3 of 9

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Project No. 102054601

NOAA Atlas 14, Volume 2, Version 3
Location name: Holmdel, New Jersey, USA*
Latitude: 40.3644°, Longitude: -74.1732°
Elevation: m/ft**

* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.335** (0.301-0.374)	**0.401** (0.360-0.446)	**0.475** (0.426-0.529)	**0.531** (0.475-0.591)	**0.599** (0.533-0.666)	**0.648** (0.574-0.720)	**0.697** (0.615-0.777)	**0.746** (0.654-0.833)	**0.805** (0.697-0.903)	**0.849** (0.730-0.957)
10-min	**0.536** (0.481-0.597)	**0.641** (0.576-0.713)	**0.761** (0.683-0.848)	**0.848** (0.759-0.945)	**0.957** (0.852-1.06)	**1.03** (0.916-1.15)	**1.11** (0.979-1.24)	**1.18** (1.03-1.32)	**1.27** (1.10-1.43)	**1.34** (1.15-1.50)
15-min	**0.670** (0.601-0.746)	**0.805** (0.724-0.896)	**0.963** (0.864-1.07)	**1.07** (0.960-1.20)	**1.21** (1.08-1.35)	**1.31** (1.16-1.45)	**1.40** (1.24-1.56)	**1.49** (1.30-1.66)	**1.60** (1.38-1.79)	**1.68** (1.44-1.89)
30-min	**0.918** (0.824-1.02)	**1.11** (0.999-1.24)	**1.37** (1.23-1.52)	**1.56** (1.39-1.73)	**1.79** (1.60-1.99)	**1.97** (1.74-2.19)	**2.14** (1.89-2.39)	**2.31** (2.03-2.58)	**2.54** (2.20-2.85)	**2.71** (2.32-3.05)
60-min	**1.14** (1.03-1.28)	**1.40** (1.25-1.55)	**1.75** (1.57-1.95)	**2.02** (1.81-2.26)	**2.39** (2.12-2.65)	**2.67** (2.36-2.96)	**2.96** (2.60-3.29)	**3.24** (2.84-3.62)	**3.64** (3.15-4.08)	**3.95** (3.39-4.45)
2-hr	**1.41** (1.26-1.57)	**1.72** (1.54-1.92)	**2.18** (1.95-2.43)	**2.53** (2.26-2.82)	**3.02** (2.68-3.36)	**3.42** (3.02-3.81)	**3.84** (3.36-4.27)	**4.26** (3.71-4.76)	**4.86** (4.18-5.46)	**5.34** (4.55-6.02)
3-hr	**1.56** (1.40-1.74)	**1.90** (1.71-2.12)	**2.41** (2.17-2.69)	**2.81** (2.52-3.13)	**3.37** (3.00-3.75)	**3.83** (3.38-4.26)	**4.31** (3.78-4.79)	**4.81** (4.18-5.36)	**5.51** (4.72-6.17)	**6.08** (5.15-6.85)
6-hr	**1.99** (1.78-2.23)	**2.42** (2.16-2.71)	**3.06** (2.73-3.42)	**3.58** (3.19-3.99)	**4.33** (3.82-4.83)	**4.96** (4.34-5.52)	**5.63** (4.88-6.26)	**6.35** (5.45-7.08)	**7.38** (6.24-8.28)	**8.24** (6.88-9.27)
12-hr	**2.41** (2.16-2.71)	**2.92** (2.61-3.28)	**3.72** (3.32-4.17)	**4.39** (3.90-4.91)	**5.39** (4.74-6.01)	**6.24** (5.45-6.95)	**7.18** (6.19-8.01)	**8.21** (6.98-9.18)	**9.75** (8.14-10.9)	**11.1** (9.09-12.4)
24-hr	**2.76** (2.50-3.08)	**3.35** (3.04-3.74)	**4.33** (3.91-4.82)	**5.16** (4.65-5.73)	**6.43** (5.75-7.11)	**7.54** (6.69-8.31)	**8.78** (7.72-9.66)	**10.2** (8.85-11.2)	**12.3** (10.5-13.5)	**14.1** (11.9-15.6)
2-day	**3.21** (2.90-3.60)	**3.90** (3.52-4.37)	**5.02** (4.53-5.61)	**5.97** (5.36-6.66)	**7.39** (6.59-8.24)	**8.62** (7.63-9.60)	**9.97** (8.76-11.1)	**11.5** (9.95-12.8)	**13.7** (11.7-15.3)	**15.6** (13.2-17.5)
3-day	**3.41** (3.11-3.77)	**4.14** (3.78-4.57)	**5.30** (4.83-5.85)	**6.28** (5.70-6.92)	**7.73** (6.97-8.51)	**8.97** (8.04-9.87)	**10.3** (9.18-11.4)	**11.8** (10.4-13.0)	**14.1** (12.2-15.5)	**15.9** (13.7-17.6)
4-day	**3.61** (3.32-3.94)	**4.38** (4.03-4.78)	**5.58** (5.13-6.09)	**6.59** (6.04-7.18)	**8.07** (7.36-8.78)	**9.32** (8.45-10.1)	**10.7** (9.62-11.6)	**12.2** (10.9-13.3)	**14.4** (12.7-15.7)	**16.2** (14.1-17.8)
7-day	**4.21** (3.90-4.55)	**5.06** (4.69-5.48)	**6.34** (5.87-6.86)	**7.41** (6.85-8.01)	**8.96** (8.24-9.67)	**10.3** (9.38-11.1)	**11.7** (10.6-12.6)	**13.2** (11.9-14.3)	**15.4** (13.7-16.7)	**17.3** (15.2-18.8)
10-day	**4.75** (4.43-5.11)	**5.69** (5.31-6.12)	**7.02** (6.55-7.55)	**8.11** (7.55-8.72)	**9.68** (8.96-10.4)	**11.0** (10.1-11.8)	**12.4** (11.3-13.3)	**13.8** (12.5-14.9)	**15.9** (14.3-17.2)	**17.7** (15.7-19.2)
20-day	**6.38** (6.01-6.79)	**7.58** (7.14-8.07)	**9.10** (8.56-9.67)	**10.3** (9.68-10.9)	**12.0** (11.2-12.7)	**13.3** (12.4-14.1)	**14.6** (13.6-15.5)	**16.0** (14.8-17.0)	**17.8** (16.3-19.0)	**19.3** (17.5-20.6)
30-day	**7.93** (7.53-8.38)	**9.38** (8.91-9.90)	**11.1** (10.5-11.7)	**12.4** (11.7-13.0)	**14.1** (13.3-14.8)	**15.4** (14.5-16.3)	**16.7** (15.7-17.7)	**18.0** (16.9-19.1)	**19.8** (18.4-20.9)	**21.1** (19.5-22.4)
45-day	**10.1** (9.60-10.6)	**11.9** (11.3-12.5)	**13.8** (13.1-14.5)	**15.2** (14.5-16.0)	**17.1** (16.2-18.0)	**18.5** (17.5-19.5)	**19.9** (18.8-20.9)	**21.2** (20.0-22.3)	**22.9** (21.5-24.2)	**24.2** (22.5-25.6)
60-day	**12.1** (11.5-12.6)	**14.2** (13.5-14.8)	**16.2** (15.5-17.0)	**17.8** (17.0-18.6)	**19.8** (18.8-20.7)	**21.2** (20.1-22.2)	**22.6** (21.4-23.6)	**23.9** (22.5-25.0)	**25.4** (23.9-26.7)	**26.6** (24.9-28.0)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

https://hdsc.nws.noaa.gov/pfds/pfds_printpage.html?lat=40.3644&lon=-74.1732&data=depth&units=english&series=pds

LANGAN
Langan Engineering and
Environmental Services, LLC.

300 Kimball Drive
Parsippany, NJ 07054

T: 973.560.4900 F: 973.560.4901 www.langan.com
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Project	Drawing Title	Project No.	Drawing No.
DATA CENTER AT BELL WORKS BLOCK No. 11, LOT No. 38.07 HOLMDEL TOWNSHIP MONMOUTH COUNTY NEW JERSEY	NOAA ATLAS 14 24-HOUR RAINFALL DATA	102054601 Date: 06/29/2026 Drawn By: SK Checked By: LDS	FIG. 4 Sheet 4 of 9

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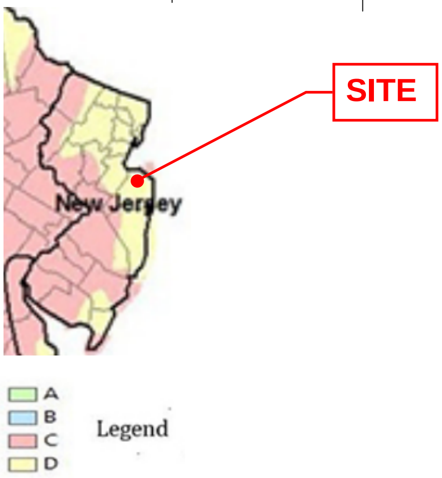

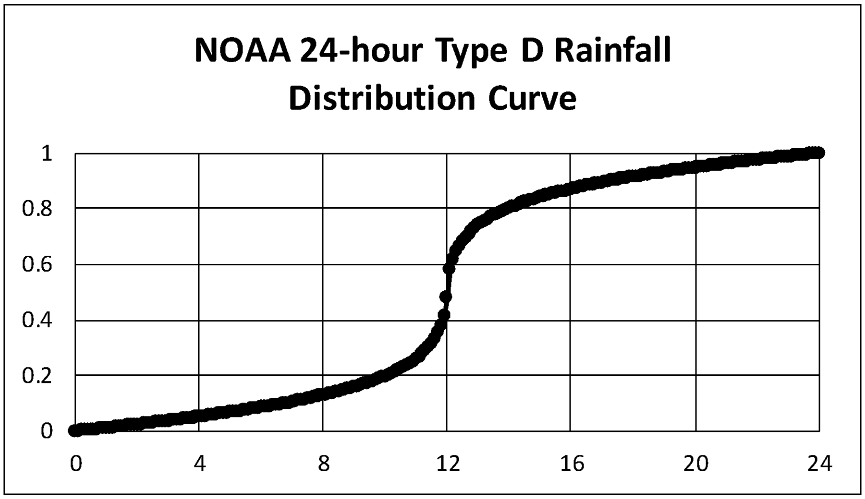

Type D

Time (hrs)	Cumulative Rainfall (%)	Time (hrs)	Cumulative Rainfall (%)	Time (hrs)	Cumulative Rainfall (%)	Time (hrs)	Cumulative Rainfall (%)	Time (hrs)	Cumulative Rainfall (%)	Time (hrs)	Cumulative Rainfall (%)
0	0.0000	4	0.05246	8	0.12977	12	0.47909	16	0.87023	20	0.94754
0.1	0.0011	4.1	0.054	8.1	0.13246	12.1	0.58346	16.1	0.87288	20.1	0.94907
0.2	0.0022	4.2	0.05555	8.2	0.13519	12.2	0.61972	16.2	0.87547	20.2	0.95059
0.3	0.00332	4.3	0.05711	8.3	0.13796	12.3	0.64585	16.3	0.87803	20.3	0.95209
0.4	0.00445	4.4	0.05869	8.4	0.14079	12.4	0.6649	16.4	0.88054	20.4	0.95359
0.5	0.00559	4.5	0.06027	8.5	0.14365	12.5	0.683	16.5	0.883	20.5	0.95507
0.6	0.00674	4.6	0.06187	8.6	0.14656	12.6	0.69644	16.6	0.88542	20.6	0.95655
0.7	0.0079	4.7	0.06347	8.7	0.14952	12.7	0.70887	16.7	0.8878	20.7	0.95801
0.8	0.00907	4.8	0.06509	8.8	0.15252	12.8	0.72028	16.8	0.89013	20.8	0.95946
0.9	0.01025	4.9	0.06672	8.9	0.15556	12.9	0.73067	16.9	0.89242	20.9	0.9609
1	0.01145	5	0.06836	9	0.15865	13	0.74005	17	0.89466	21	0.96233
1.1	0.01265	5.1	0.07001	9.1	0.1619	13.1	0.7484	17.1	0.89686	21.1	0.96374
1.2	0.01387	5.2	0.07167	9.2	0.1653	13.2	0.75618	17.2	0.89901	21.2	0.96515
1.3	0.0151	5.3	0.07335	9.3	0.16887	13.3	0.76338	17.3	0.90112	21.3	0.96654
1.4	0.01634	5.4	0.07503	9.4	0.17259	13.4	0.77	17.4	0.90318	21.4	0.96793
1.5	0.01759	5.5	0.07673	9.5	0.17647	13.5	0.77604	17.5	0.9052	21.5	0.9693
1.6	0.01885	5.6	0.07843	9.6	0.18051	13.6	0.7815	17.6	0.90717	21.6	0.97066
1.7	0.02012	5.7	0.08015	9.7	0.1847	13.7	0.7868	17.7	0.9091	21.7	0.97201
1.8	0.0214	5.8	0.08188	9.8	0.18906	13.8	0.79195	17.8	0.91099	21.8	0.97335
1.9	0.0227	5.9	0.08362	9.9	0.19357	13.9	0.79693	17.9	0.91283	21.9	0.97468
2	0.024	6	0.08537	10	0.19824	14	0.80176	18	0.91463	22	0.976
2.1	0.02532	6.1	0.08717	10.1	0.20307	14.1	0.80643	18.1	0.91638	22.1	0.9773
2.2	0.02665	6.2	0.08901	10.2	0.20805	14.2	0.81094	18.2	0.91812	22.2	0.9786
2.3	0.02799	6.3	0.0909	10.3	0.2132	14.3	0.8153	18.3	0.91985	22.3	0.97988
2.4	0.02934	6.4	0.09283	10.4	0.2185	14.4	0.81949	18.4	0.92157	22.4	0.98115
2.5	0.0307	6.5	0.0948	10.5	0.22396	14.5	0.82353	18.5	0.92327	22.5	0.98241
2.6	0.03207	6.6	0.09682	10.6	0.23	14.6	0.82741	18.6	0.92497	22.6	0.98366
2.7	0.03346	6.7	0.09888	10.7	0.23662	14.7	0.83113	18.7	0.92665	22.7	0.9849
2.8	0.03485	6.8	0.10099	10.8	0.24382	14.8	0.8347	18.8	0.92833	22.8	0.98613
2.9	0.03626	6.9	0.10314	10.9	0.2516	14.9	0.8381	18.9	0.92999	22.9	0.98735
3	0.03767	7	0.10534	11	0.25995	15	0.84135	19	0.93164	23	0.98855
3.1	0.0391	7.1	0.10758	11.1	0.26933	15.1	0.84444	19.1	0.93328	23.1	0.98975
3.2	0.04054	7.2	0.10987	11.2	0.27972	15.2	0.84748	19.2	0.93491	23.2	0.99093
3.3	0.04199	7.3	0.1122	11.3	0.29113	15.3	0.85048	19.3	0.93653	23.3	0.9921
3.4	0.04345	7.4	0.11458	11.4	0.30356	15.4	0.85344	19.4	0.93813	23.4	0.99326
3.5	0.04493	7.5	0.117	11.5	0.317	15.5	0.85635	19.5	0.93973	23.5	0.99441
3.6	0.04641	7.6	0.11946	11.6	0.3351	15.6	0.85921	19.6	0.94131	23.6	0.99555
3.7	0.04791	7.7	0.12197	11.7	0.35415	15.7	0.86204	19.7	0.94289	23.7	0.99668
3.8	0.04941	7.8	0.12453	11.8	0.38028	15.8	0.86481	19.8	0.94445	23.8	0.99779
3.9	0.05093	7.9	0.12712	11.9	0.41654	15.9	0.86754	19.9	0.946	23.9	0.9989
										24	1.0000

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Project No. 102054601

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Langan Engineering and
Environmental Services, LLC.

300 Kimball Drive
Parsippany, NJ 07054

T: 973.560.4900 F: 973.560.4901 www.langan.com
NJ CERTIFICATE OF AUTHORIZATION NO. 24GA27996400

Project
DATA CENTER AT BELL WORKS
BLOCK No. 11, LOT No. 38.07
HOLMDEL TOWNSHIP
MONMOUTH COUNTY NEW JERSEY

Drawing Title
NOAA TYPE D RAINFALL DISTRIBUTION

Project No.
102054601
Date
06/29/2026
Drawn By
SK
Checked By
LDS

Drawing No.
FIG. 5

Sheet 5 of 9

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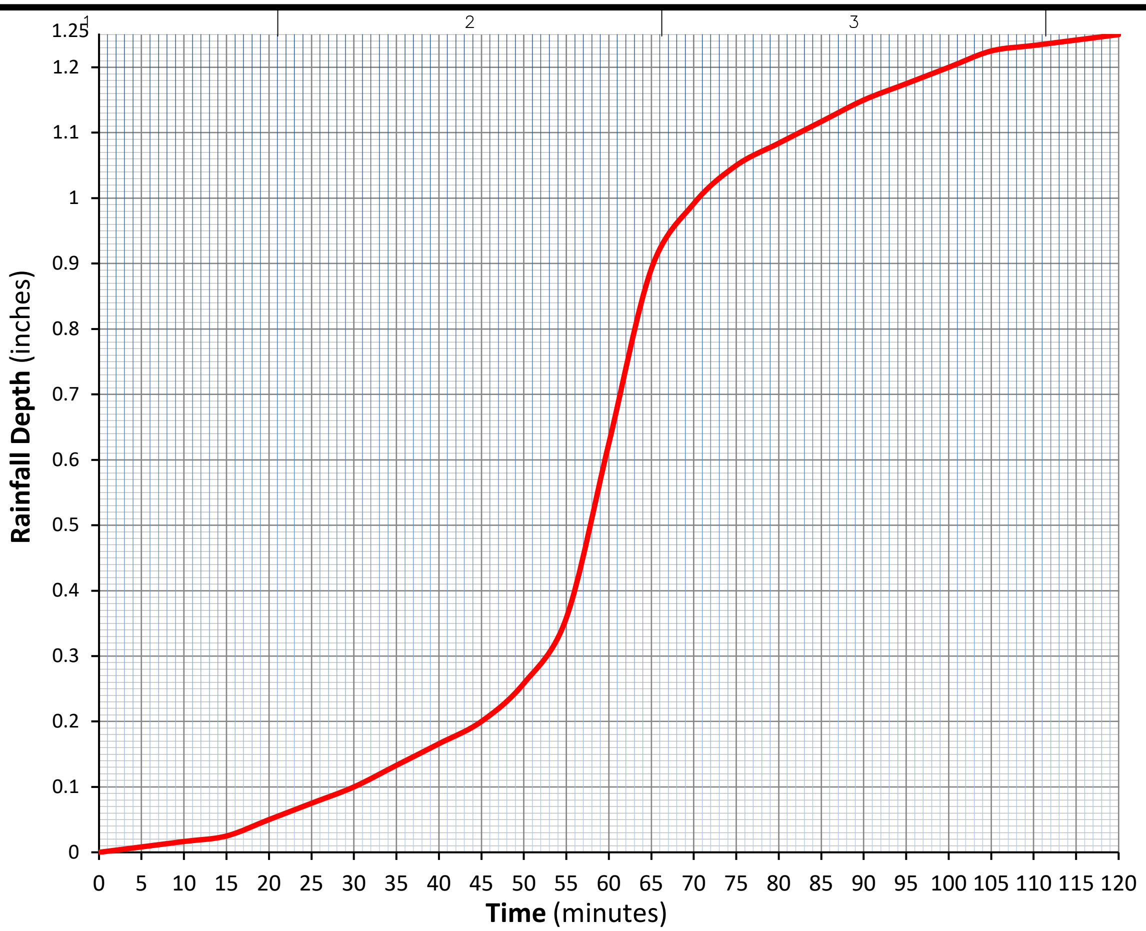

Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)
1	0.00166	41	0.1728	81	1.0906
2	0.00332	42	0.1796	82	1.0972
3	0.00498	43	0.1864	83	1.1038
4	0.00664	44	0.1932	84	1.1104
5	0.00830	45	0.2000	85	1.1170
6	0.00996	46	0.2117	86	1.1236
7	0.01162	47	0.2233	87	1.1302
8	0.01328	48	0.2350	88	1.1368
9	0.01494	49	0.2466	89	1.1434
10	0.01660	50	0.2583	90	1.1500
11	0.01828	51	0.2783	91	1.1550
12	0.01996	52	0.2983	92	1.1600
13	0.02164	53	0.3183	93	1.1650
14	0.02332	54	0.3383	94	1.1700
15	0.02500	55	0.3583	95	1.1750
16	0.03000	56	0.4116	96	1.1800
17	0.03500	57	0.4650	97	1.1850
18	0.04000	58	0.5183	98	1.1900
19	0.04500	59	0.5717	99	1.1950
20	0.05000	60	0.6250	100	1.2000
21	0.05500	61	0.6783	101	1.2050
22	0.06000	62	0.7317	102	1.2100
23	0.06500	63	0.7850	103	1.2150
24	0.07000	64	0.8384	104	1.2200
25	0.07500	65	0.8917	105	1.2250
26	0.08000	66	0.9117	106	1.2267
27	0.08500	67	0.9317	107	1.2284
28	0.09000	68	0.9517	108	1.2300
29	0.09500	69	0.9717	109	1.2317
30	0.10000	70	0.9917	110	1.2334
31	0.10660	71	1.0034	111	1.2351
32	0.11320	72	1.0150	112	1.2367
33	0.11980	73	1.0267	113	1.2384
34	0.12640	74	1.0383	114	1.2400
35	0.13300	75	1.0500	115	1.2417
36	0.13960	76	1.0568	116	1.2434
37	0.14620	77	1.0636	117	1.2450
38	0.15280	78	1.0704	118	1.2467
39	0.15940	79	1.0772	119	1.2483
40	0.16600	80	1.0840	120	1.2500

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LANGAN
Langan Engineering and
Environmental Services, LLC.

300 Kimball Drive
Parsippany, NJ 07054

T: 973.560.4900 F: 973.560.4901 www.langan.com
NJ CERTIFICATE OF AUTHORIZATION NO. 24GA27996400

Project
DATA CENTER AT BELL WORKS
BLOCK No. 11, LOT No. 38.07
HOLMDEL TOWNSHIP
MONMOUTH COUNTY NEW JERSEY

Drawing Title
NJDEP WATER QUALITY DESIGN STORM

Project No.
102054601
Date
06/29/2026
Drawn By
SK
Checked By
LDS

Drawing No.
FIG. 6
Sheet 6 of 9

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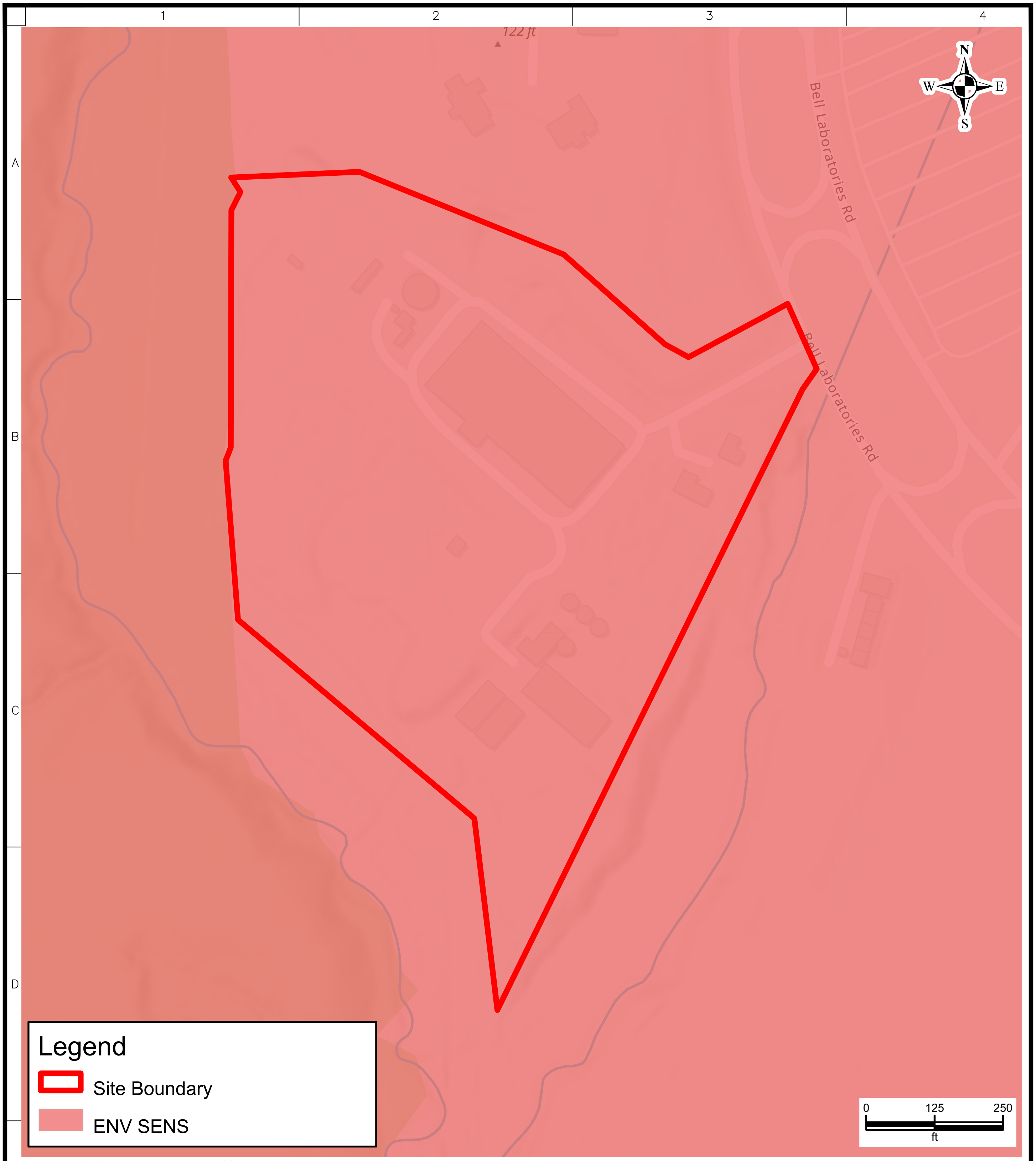
1
2
3
4
A
B
C
D
122 ft
Bell Laboratories Rd
Bell Laboratories Rd
N
E
S
W
Legend
Site Boundary
ENV SENS
0
125
250
ft

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS, FEMA; NJDEP

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Project No. 102054601

LANGAN Langan Engineering and Environmental Services, LLC. 300 Kimball Drive Parsippany, NJ 07054 T: 973.560.4900 F: 973.560.4901 www.langan.com NJ CERTIFICATE OF AUTHORIZATION NO. 24GA27996400	Project DATA CENTER AT BELL WORKS BLOCK No. 11, LOT No. 38.07 HOLMDEL TOWNSHIP MONMOUTH COUNTY NEW JERSEY	Drawing Title **NJ STATE PLANNING AREAS MAP**	Project No. **102054601** Date **06/29/2026** Drawn By **SK** Checked By **LDS**	Drawing No. **FIG. 7** Sheet 7 of 9

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Land Use	Description	Hydrologic Soils Group			
		A	B	C	D
Cultivated Land	without conservation treatment	0.49	0.67	0.81	0.88
	with conservation treatment	0.27	0.43	0.67	0.67
Pasture or Range Land	poor condition	0.38	0.63	0.78	0.84
Meadow	good condition	---	0.25	0.51	0.65
	good condition	---	---	0.41	0.61
Wood or Forest Land	thin stand, poor cover, no mulch	---	0.34	0.59	0.70
	good cover	---	---	0.45	0.59
Open Spaces, Lawns, Parks, Golf Courses, Cemeteries					
Good Condition	grass cover on 75% or more	---	0.25	0.51	0.65
Fair Condition	grass cover on 50% to 75%	---	0.45	0.63	0.74
Commercial and Business Area	85% impervious	0.84	0.90	0.93	0.96
Industrial Districts	72% impervious	0.67	0.81	0.88	0.92
Residential	average % impervious				
Average Lot Size (acres)					
1/8	65	0.59	0.76	0.86	0.90
1/4	38	0.29	0.55	0.70	0.80
1/3	30	---	0.49	0.67	0.78
1/2	25	---	0.45	0.65	0.76
1	20	---	0.41	0.63	0.74
Paved Areas	parking lots, roofs, driveways, etc.	0.99	0.99	0.99	0.99
Streets and Roads	paved with curbs & storm sewers	0.99	0.99	0.99	0.99
	Gravel	0.57	0.76	0.84	0.88
	dirt	0.49	0.69	0.80	0.84

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LANGAN
Langan Engineering and
Environmental Services, LLC.

300 Kimball Drive
Parsippany, NJ 07054

T: 973.560.4900 F: 973.560.4901 www.langan.com
NJ CERTIFICATE OF AUTHORIZATION NO. 24GA27996400

Project
DATA CENTER AT BELL WORKS
BLOCK No. 11, LOT No. 38.07
HOLMDEL TOWNSHIP
MONMOUTH COUNTY NEW JERSEY

Drawing Title
RUNOFF COEFFICIENTS

Project No. 102054601
Date 06/29/2026
Drawn By SK
Checked By LDS

Drawing No.
FIG. 8

Sheet 8 of 9

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Project No. 102054601

NOAA Atlas 14, Volume 2, Version 3
Location name: Holmdel, New Jersey, USA*
Latitude: 40.3644°, Longitude: -74.1732°
Elevation: 109 ft**

* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**4.02** (3.61-4.49)	**4.81** (4.32-5.35)	**5.70** (5.11-6.35)	**6.37** (5.70-7.09)	**7.19** (6.40-7.99)	**7.78** (6.89-8.64)	**8.36** (7.38-9.32)	**8.95** (7.85-10.0)	**9.66** (8.36-10.8)	**10.2** (8.76-11.5)
10-min	**3.22** (2.89-3.58)	**3.85** (3.46-4.28)	**4.57** (4.10-5.09)	**5.09** (4.55-5.67)	**5.74** (5.11-6.38)	**6.20** (5.50-6.89)	**6.67** (5.87-7.42)	**7.09** (6.20-7.91)	**7.63** (6.61-8.56)	**8.01** (6.88-9.02)
15-min	**2.68** (2.40-2.98)	**3.22** (2.90-3.58)	**3.85** (3.46-4.29)	**4.29** (3.84-4.78)	**4.84** (4.31-5.38)	**5.22** (4.63-5.80)	**5.62** (4.95-6.25)	**5.96** (5.22-6.65)	**6.39** (5.54-7.17)	**6.70** (5.76-7.55)
30-min	**1.84** (1.65-2.05)	**2.23** (2.00-2.48)	**2.74** (2.45-3.05)	**3.11** (2.78-3.46)	**3.58** (3.19-3.99)	**3.94** (3.48-4.37)	**4.29** (3.78-4.78)	**4.63** (4.05-5.16)	**5.08** (4.40-5.69)	**5.41** (4.65-6.10)
60-min	**1.14** (1.03-1.28)	**1.40** (1.25-1.55)	**1.75** (1.57-1.95)	**2.02** (1.81-2.26)	**2.39** (2.12-2.65)	**2.67** (2.36-2.96)	**2.96** (2.60-3.29)	**3.24** (2.84-3.62)	**3.64** (3.15-4.08)	**3.95** (3.39-4.45)
2-hr	**0.704** (0.630-0.786)	**0.858** (0.768-0.957)	**1.09** (0.975-1.22)	**1.27** (1.13-1.41)	**1.51** (1.34-1.68)	**1.71** (1.51-1.90)	**1.92** (1.68-2.14)	**2.13** (1.86-2.38)	**2.43** (2.09-2.73)	**2.67** (2.27-3.01)
3-hr	**0.517** (0.465-0.577)	**0.631** (0.569-0.704)	**0.802** (0.721-0.895)	**0.935** (0.838-1.04)	**1.12** (0.998-1.25)	**1.28** (1.13-1.42)	**1.43** (1.26-1.60)	**1.60** (1.39-1.78)	**1.84** (1.57-2.06)	**2.02** (1.71-2.28)
6-hr	**0.332** (0.297-0.372)	**0.404** (0.361-0.452)	**0.511** (0.456-0.571)	**0.598** (0.532-0.666)	**0.723** (0.637-0.805)	**0.827** (0.725-0.921)	**0.939** (0.814-1.05)	**1.06** (0.909-1.18)	**1.23** (1.04-1.38)	**1.38** (1.15-1.55)
12-hr	**0.200** (0.178-0.224)	**0.242** (0.216-0.272)	**0.308** (0.275-0.345)	**0.364** (0.323-0.407)	**0.447** (0.393-0.498)	**0.518** (0.452-0.577)	**0.595** (0.513-0.664)	**0.681** (0.579-0.761)	**0.809** (0.675-0.907)	**0.917** (0.754-1.03)
24-hr	**0.115** (0.104-0.128)	**0.139** (0.126-0.155)	**0.180** (0.163-0.200)	**0.215** (0.193-0.238)	**0.267** (0.239-0.296)	**0.314** (0.278-0.346)	**0.365** (0.321-0.402)	**0.423** (0.368-0.466)	**0.511** (0.437-0.563)	**0.588** (0.494-0.649)
2-day	**0.066** (0.060-0.074)	**0.081** (0.073-0.090)	**0.104** (0.094-0.116)	**0.124** (0.111-0.138)	**0.153** (0.137-0.171)	**0.179** (0.158-0.199)	**0.207** (0.182-0.231)	**0.238** (0.207-0.266)	**0.285** (0.244-0.319)	**0.325** (0.274-0.364)
3-day	**0.047** (0.043-0.052)	**0.057** (0.052-0.063)	**0.073** (0.067-0.081)	**0.087** (0.079-0.096)	**0.107** (0.096-0.118)	**0.124** (0.111-0.137)	**0.143** (0.127-0.157)	**0.164** (0.144-0.180)	**0.195** (0.169-0.215)	**0.221** (0.189-0.245)
4-day	**0.037** (0.034-0.041)	**0.045** (0.041-0.049)	**0.058** (0.053-0.063)	**0.068** (0.062-0.074)	**0.084** (0.076-0.091)	**0.097** (0.088-0.105)	**0.111** (0.100-0.121)	**0.126** (0.113-0.138)	**0.149** (0.131-0.163)	**0.169** (0.147-0.185)
7-day	**0.025** (0.023-0.027)	**0.030** (0.027-0.032)	**0.037** (0.034-0.040)	**0.044** (0.040-0.047)	**0.053** (0.049-0.057)	**0.061** (0.055-0.065)	**0.069** (0.063-0.075)	**0.078** (0.070-0.084)	**0.091** (0.081-0.099)	**0.102** (0.090-0.111)
10-day	**0.019** (0.018-0.021)	**0.023** (0.022-0.025)	**0.029** (0.027-0.031)	**0.033** (0.031-0.036)	**0.040** (0.037-0.043)	**0.045** (0.042-0.049)	**0.051** (0.047-0.055)	**0.057** (0.052-0.061)	**0.066** (0.059-0.071)	**0.073** (0.065-0.079)
20-day	**0.013** (0.012-0.014)	**0.015** (0.014-0.016)	**0.018** (0.017-0.020)	**0.021** (0.020-0.022)	**0.024** (0.023-0.026)	**0.027** (0.025-0.029)	**0.030** (0.028-0.032)	**0.033** (0.030-0.035)	**0.037** (0.033-0.039)	**0.040** (0.036-0.042)
30-day	**0.011** (0.010-0.011)	**0.013** (0.012-0.013)	**0.015** (0.014-0.016)	**0.017** (0.016-0.018)	**0.019** (0.018-0.020)	**0.021** (0.020-0.022)	**0.023** (0.021-0.024)	**0.025** (0.023-0.026)	**0.027** (0.025-0.029)	**0.029** (0.027-0.031)
45-day	**0.009** (0.008-0.009)	**0.010** (0.010-0.011)	**0.012** (0.012-0.013)	**0.014** (0.013-0.014)	**0.015** (0.015-0.016)	**0.017** (0.016-0.018)	**0.018** (0.017-0.019)	**0.019** (0.018-0.020)	**0.021** (0.019-0.022)	**0.022** (0.020-0.023)
60-day	**0.008** (0.007-0.008)	**0.009** (0.009-0.010)	**0.011** (0.010-0.011)	**0.012** (0.011-0.012)	**0.013** (0.013-0.014)	**0.014** (0.013-0.015)	**0.015** (0.014-0.016)	**0.016** (0.015-0.017)	**0.017** (0.016-0.018)	**0.018** (0.017-0.019)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

https://hdsc.nws.noaa.gov/pfds/pfds_printpage.html?lat=40.3644&lon=-74.1732&data=intensity&units=english&series=pds

LANGAN

Langan Engineering and
Environmental Services, LLC.

300 Kimball Drive
Parsippany, NJ 07054

T: 973.560.4900 F: 973.560.4901 www.langan.com
NJ CERTIFICATE OF AUTHORIZATION NO. 24GA27996400

Project	DATA CENTER AT BELL WORKS BLOCK No. 11, LOT No. 38.07 HOLMDEL TOWNSHIP MONMOUTH COUNTY NEW JERSEY
Drawing Title	NOAA IDF DATA
Project No.	102054601
Date	06/29/2026
Drawn By	SK
Checked By	LDS
Drawing No.	FIG. 9
Sheet	9 of 9

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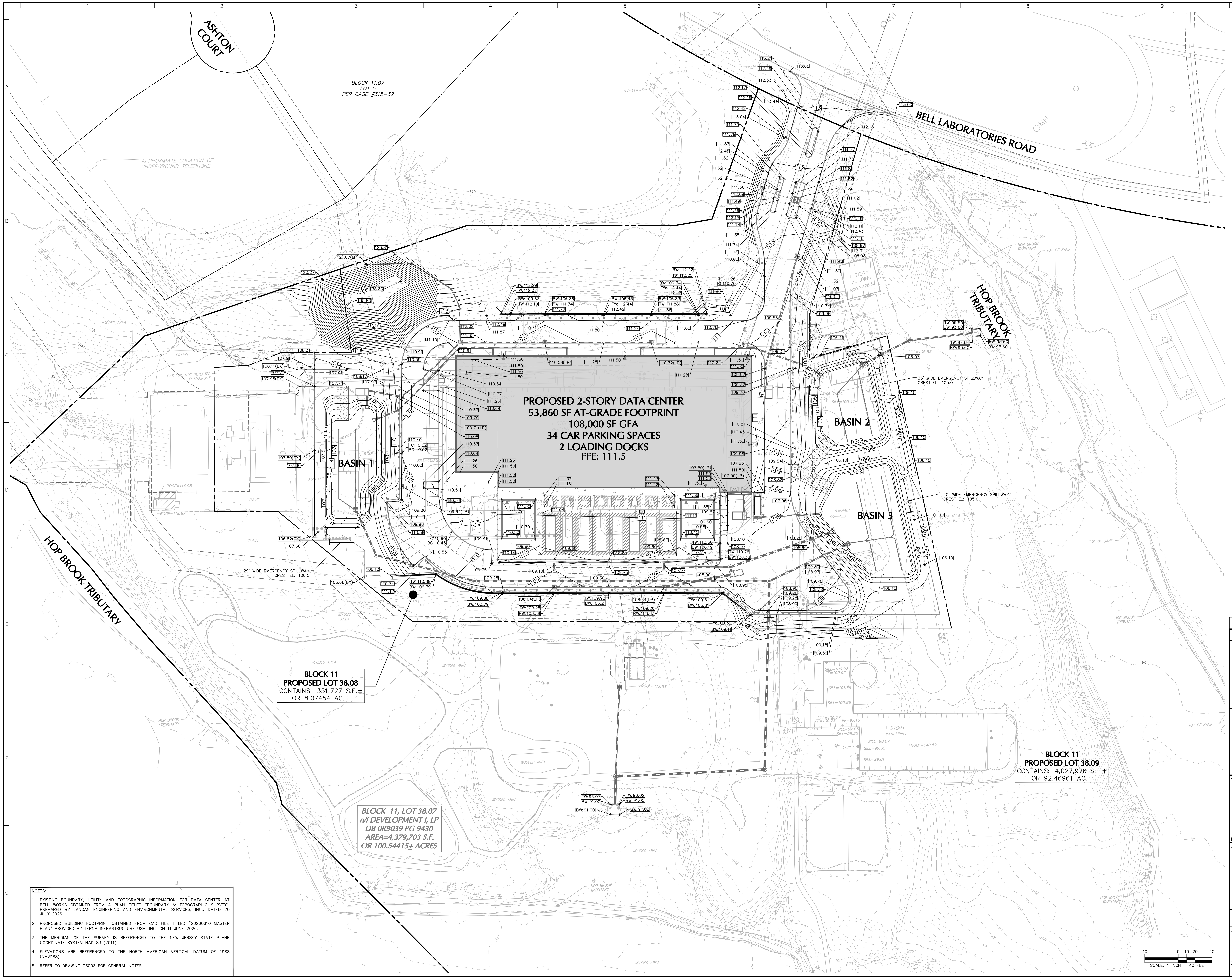
DRAWINGS


ASHTON COURT
BLOCK 11.07
LOT 5
PER CASE #315-32
APPROXIMATE LOCATION OF UNDERGROUND TELEPHONE
BELL LABORATORIES ROAD
NJ NAD 83 (2011)
PROPOSED 2-STORY DATA CENTER
53,860 SF AT-GRADE FOOTPRINT
108,000 SF GFA
34 CAR PARKING SPACES
2 LOADING DOCKS
FFE: 111.5
BASIN 1
BASIN 2
BASIN 3
HOP BROOK TRIBUTARY
29' WIDE EMERGENCY SPILLWAY
CREST EL: 106.5
33' WIDE EMERGENCY SPILLWAY
CREST EL: 105.0
40' WIDE EMERGENCY SPILLWAY
CREST EL: 105.0
BLOCK 11
PROPOSED LOT 38.08
CONTAINS: 351,727 S.F.±
OR 8.07454 AC.±
BLOCK 11
PROPOSED LOT 38.09
CONTAINS: 4,027,976 S.F.±
OR 92.46961 AC.±
BLOCK 11, LOT 38.07
n/f DEVELOPMENT I, LP
DB 0R9039 PG 9430
AREA=4,379,703 S.F.
OR 100.54415± ACRES
WOODED AREA
GRASS
40 0 10 20 40
SCALE: 1 INCH = 40 FEET

LEGEND

o— — — —o	PROPERTY LINE
— 600 —	EXISTING MAJOR CONTOUR
- - 599 - -	EXISTING MINOR CONTOUR
—600—	PROPOSED MAJOR CONTOUR
—601—	PROPOSED MINOR CONTOUR
× 135.50	PROPOSED SPOT ELEVATION
× TW 278.20 BW 269.00	LAWN ELEVATION AT PROPOSED TOP/BOTTOM OF WALL
× 258.31 (LP)	PROPOSED LOW POINT
× 272.23 (HP)	PROPOSED HIGH POINT

NOTE:
ELEVATIONS ALONG THE CURB REFERENCE THE BOTTOM OF CURB / EDGE OF PAVEMENT. ADD 6 INCHES FOR TOP OF CURB EXCEPT FOR THE FOLLOWING:

1. ADD 1.5 INCHES AT DEPRESSED DRIVEWAY ENTRANCES
2. TOP OF CURB TO BE FLUSH WITH PAVEMENT AT ADA RAMPS.
3. TOP OF WALL ELEVATION TO BE A MINIMUM OF 4 INCHES ABOVE ADJACENT LAWN ELEVATION.

NOTES:

1. EXISTING BOUNDARY, UTILITY AND TOPOGRAPHIC INFORMATION FOR DATA CENTER AT BELL WORKS OBTAINED FROM A PLAN TITLED "BOUNDARY & TOPOGRAPHIC SURVEY", PREPARED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC., DATED 20 JULY 2026.
2. PROPOSED BUILDING FOOTPRINT OBTAINED FROM CAD FILE TITLED "20260610_MASTER PLAN" PROVIDED BY TERNA INFRASTRUCTURE USA, INC. ON 11 JUNE 2026.
3. THE MERIDIAN OF THE SURVEY IS REFERENCED TO THE NEW JERSEY STATE PLANE COORDINATE SYSTEM NAD 83 (2011).
4. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
5. REFER TO DRAWING CS003 FOR GENERAL NOTES.

LANGAN

Project No. 102054601

Date	Description	No.

Revisions

LANGAN
Langan Engineering and
Environmental Services, LLC
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com
NJ Certificate of Authorization No. 24GA27996400

Project

DATA CENTER AT BELL WORKS

BLOCK NO. 11, LOT NO. 11 38.07
A PORTION OF BLOCK NO. 11, LOT NO. 38.05
HOLMDEL TOWNSHIP
MONMOUTH COUNTY NEW JERSEY

Drawing Title

GRADING PLAN

Project No.
102054601
Date
7/24/2026
Drawn By
BMW
Checked By
LDS
Drawing No.
CG101

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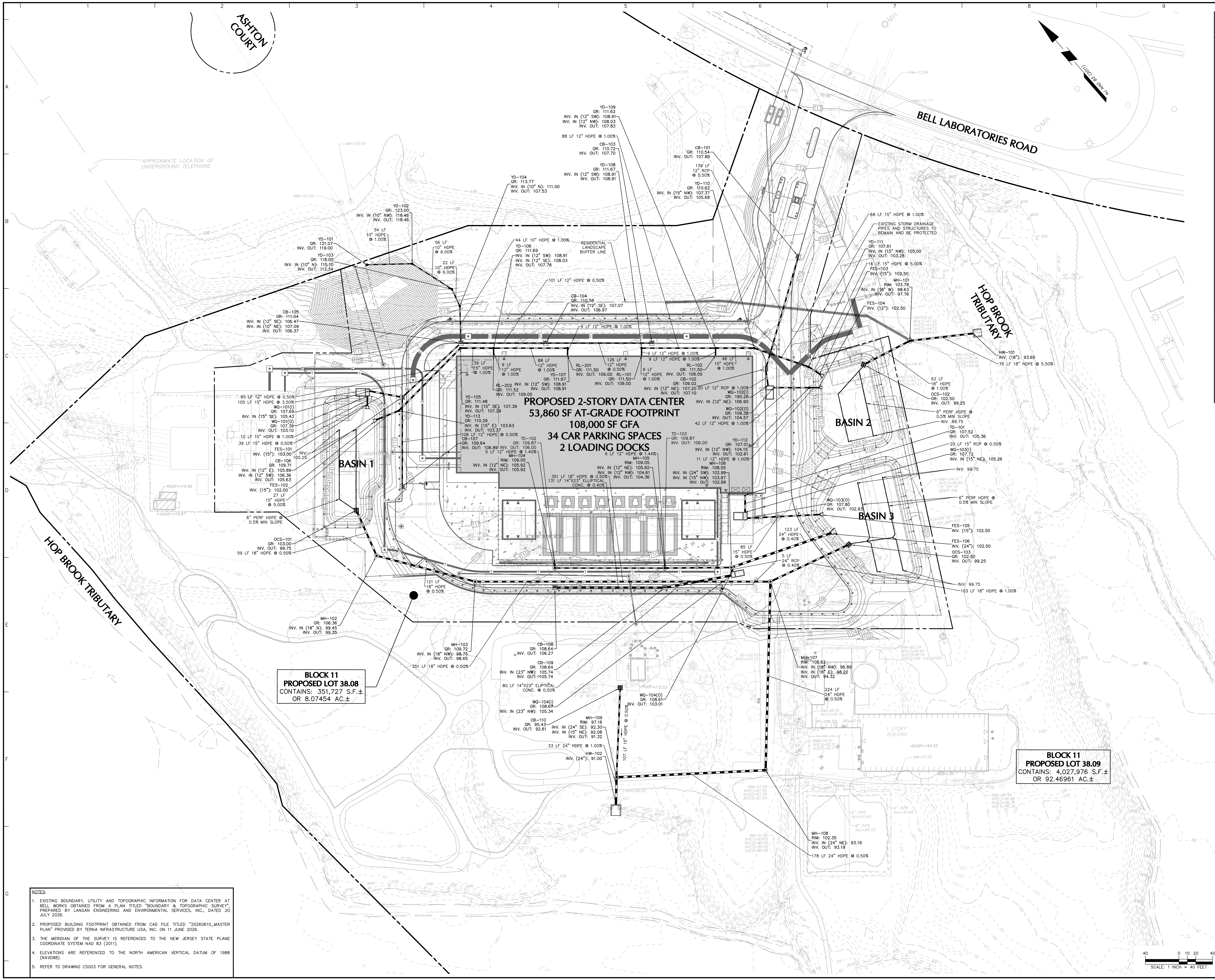
ASHTON COURT
BELL LABORATORIES ROAD
HOP BROOK TRIBUTARY
HOP BROOK TRIBUTARY
APPROXIMATE LOCATION OF UNDERGROUND TELEPHONE
YD-109 GR: 111.62 INV. IN (12" SW): 108.91 INV. IN (12" NW): 108.03 INV. OUT: 107.83
88 LF 12" HDPE @ 1.00%
CB-103 GR: 110.72 INV. OUT: 107.70
YD-108 GR: 111.67 INV. IN (12" SW): 108.91 INV. OUT: 108.91
CB-101 GR: 110.54 INV. OUT: 107.89
139 LF 12" RCP @ 0.50%
YD-110 GR: 110.62 INV. IN (15" NW): 107.37 INV. OUT: 105.68
YD-104 GR: 113.77 INV. IN (10" N): 111.00 INV. OUT: 107.53
YD-102 GR: 123.00 INV. IN (10" NW): 118.46 INV. OUT: 118.46
54 LF 10" HDPE @ 1.00%
YD-101 GR: 121.07 INV. OUT: 119.00
YD-103 GR: 118.00 INV. IN (10" N): 115.10 INV. OUT: 112.34
56 LF 10" HDPE @ 6.00%
22 LF 10" HDPE @ 6.00%
44 LF 10" HDPE @ 1.00%
YD-106 GR: 111.69 INV. IN (12" SW): 108.91 INV. IN (12" SE): 108.03 INV. OUT: 107.78
RESIDENTIAL LANDSCAPE BUFFER LINE
101 LF 12" HDPE @ 0.50%
CB-104 GR: 110.58 INV. IN (12" SE): 107.07 INV. OUT: 106.97
9 LF 12" HDPE @ 1.00%
CB-105 GR: 111.04 INV. IN (12" SE): 106.47 INV. IN (10" NE): 107.09 INV. OUT: 106.37
68 LF 15" HDPE @ 1.00%
EXISTING STORM DRAINAGE PIPES AND STRUCTURES TO REMAIN AND BE PROTECTED
YD-111 GR: 107.61 INV. IN (15" NW): 105.00 INV. OUT: 103.28
16 LF 15" HDPE @ 5.00%
FES-103 INV. (15"): 102.50
MH-101 RIM: 103.78 INV. IN (18" W): 98.63 INV. OUT: 97.76
FES-104 INV. (12"): 102.50
HW-101 INV. (18"): 93.60
76 LF 18" HDPE @ 5.50%
39 LF 15" HDPE @ 1.00%
9 LF 12" HDPE @ 1.00%
88 LF 12" HDPE @ 1.00%
126 LF 12" HDPE @ 0.50%
9 LF 12" HDPE @ 1.00%
9 LF 12" HDPE @ 1.00%
46 LF 15" HDPE @ 1.00%
RL-202 GR: 111.52 INV. OUT: 109.00
YD-107 GR: 111.67 INV. IN (12" SW): 108.91 INV. OUT: 108.91
RL-201 GR: 111.50 INV. OUT: 109.00
RL-101 GR: 111.50 INV. OUT: 109.00
RL-102 GR: 111.50 INV. OUT: 109.00
CB-102 GR: 109.02 INV. IN (12" NE): 107.20 INV. OUT: 107.10
20 LF 12" RCP @ 1.00%
WQ-102(I) GR: 190.26 INV. IN (12" NE): 106.90
WQ-102(O) GR: 109.38 INV. OUT: 104.57
42 LF 12" HDPE @ 1.00%
62 LF 18" HDPE @ 1.00%
OCS-102 GR: 102.50 INV. OUT: 99.25
6" PERF HDPE @ 0.5% MIN SLOPE
INV: 99.75
BASIN 2
TD-101 GR: 107.52 INV. OUT: 105.36
20 LF 15" RCP @ 0.50%
WQ-103(I) GR: 107.72 INV. IN (15" NE): 105.26
INV: 99.75
PROPOSED 2-STORY DATA CENTER
53,860 SF AT-GRADE FOOTPRINT
108,000 SF GFA
34 CAR PARKING SPACES
2 LOADING DOCKS
YD-105 GR: 111.48 INV. IN (15" SE): 107.39 INV. OUT: 107.29
YD-113 GR: 110.29 INV. IN (15" E): 103.63 INV. OUT: 103.37
106 LF 12" HDPE @ 0.50%
CB-107 GR: 109.64 INV. OUT: 106.89
TD-102 GR: 109.87 INV. OUT: 106.00
5 LF 12" HDPE @ 1.45%
MH-104 RIM: 109.05 INV. IN (12" NE): 105.92 INV. OUT: 105.92
TD-103 GR: 109.87 INV. OUT: 106.00
YD-112 GR: 107.01 INV. IN (12" NW): 104.15 INV. OUT: 102.61
11 LF 12" HDPE @ 1.00%
6 LF 12" HDPE @ 1.44%
MH-105 RIM: 109.05 INV. IN (12" NE): 105.92 INV. IN (12" NW): 104.61 INV. OUT: 104.36
351 LF 18" HDPE @ 0.50%
131 LF 14"X23" ELLIPTICAL CONC. @ 0.40%
MH-106 RIM: 108.55 INV. IN (24" SW): 102.99 INV. IN (15" NW): 103.97 INV. OUT: 102.99
95 LF 12" HDPE @ 0.50%
105 LF 15" HDPE @ 3.50%
WQ-101(I) GR: 107.69 INV. IN (15" SE): 105.43
WQ-101(O) GR: 107.39 INV. OUT: 103.10
10 LF 15" HDPE @ 1.00%
39 LF 15" HDPE @ 0.50%
FES-101 INV. (15"): 103.00
INV: 100.25
CB-106 GR: 109.71 INV. IN (12" E): 105.89 INV. IN (12" SW): 106.36 INV. OUT: 105.63
FES-102 INV. (15"): 102.00
27 LF 15" HDPE @ 5.00%
BASIN 1
6" PERF HDPE @ 0.5% MIN SLOPE
OCS-101 GR: 103.00 INV. OUT: 99.75
59 LF 18" HDPE @ 0.50%
WQ-103(O) GR: 107.80 INV. OUT: 102.93
BASIN 3
6" PERF HDPE @ 0.5% MIN SLOPE
123 LF 24" HDPE @ 0.40%
85 LF 15" HDPE @ 0.50%
5 LF 24" RCP @ 0.40%
FES-105 INV. (15"): 102.50
FES-106 INV. (24"): 102.50
OCS-103 GR: 102.50 INV. OUT: 99.25
INV: 99.75
103 LF 18" HDPE @ 1.00%
121 LF 18" HDPE @ 0.50%
MH-102 GR: 106.36 INV. IN (18" N): 99.45 INV. OUT: 99.35
MH-103 GR: 109.72 INV. IN (18" NW): 98.75 INV. OUT: 98.65
351 LF 18" HDPE @ 0.50%
BLOCK 11 PROPOSED LOT 38.08 CONTAINS: 351,727 S.F.± OR 8.07454 AC.±
CB-108 GR: 108.64 INV. OUT: 106.27
CB-109 GR: 108.64 INV. IN (23" NW): 105.74 INV. OUT: 105.74
80 LF 14"X23" ELIPTICAL CONC. @ 0.50%
WQ-104(I) GR: 108.67 INV. IN (23" NW): 105.34
WQ-104(O) GR: 108.61 INV. OUT: 103.01
CB-110 GR: 95.43 INV. OUT: 92.61
MH-109 RIM: 97.16 INV. IN (24" SE): 92.30 INV. IN (15" NE): 92.08 INV. OUT: 91.32
107 LF 15" HDPE @ 0.50%
33 LF 24" HDPE @ 1.00%
HW-102 INV. (24"): 91.00
MH-107 RIM: 108.62 INV. IN (18" NW): 96.89 INV. IN (18" E): 98.22 INV. OUT: 94.32
224 LF 24" HDPE @ 0.50%
1 STORY BUILDING
BLOCK 11 PROPOSED LOT 38.09 CONTAINS: 4,027,976 S.F.± OR 92.46961 AC.±
MH-108 RIM: 102.35 INV. IN (24" NE): 93.19 INV. OUT: 93.19
178 LF 24" HDPE @ 0.50%
40 0 10 20 40
SCALE: 1 INCH = 40 FEET

NOTES:

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5. REFER TO DRAWING CS003 FOR GENERAL NOTES.

DRAINAGE STRUCTURE SCHEDULE

DATA CENTER AT BELL WORKS

Structure ID	Structure Type
CB-101	TYPE B INLET
CB-102	TYPE B INLET
CB-103	TYPE B INLET
CB-104	TYPE B INLET
CB-105	TYPE B INLET
CB-106	TYPE B INLET
CB-107	TYPE B INLET
CB-108	TYPE B INLET
CB-109	TYPE B INLET
CB-110	TYPE E INLET
CB-101	TYPE B INLET
CB-102	TYPE B INLET
CB-103	TYPE B INLET
CB-104	TYPE B INLET
CB-105	TYPE B INLET
CB-106	TYPE B INLET
CB-107	TYPE B INLET
CB-108	TYPE B INLET
CB-109	TYPE B INLET
CB-110	TYPE E INLET
FES-101	15" HDPE FLARED END SECTION
FES-102	15" HDPE FLARED END SECTION
FES-103	15" HDPE FLARED END SECTION
FES-104	12" HDPE FLARED END SECTION
FES-105	15" HDPE FLARED END SECTION
FES-106	24" HDPE FLARED END SECTION
HW-101	CONCRETE HEADWALL
HW-102	CONCRETE HEADWALL
MH-101	4' DIAMETER PRECAST CONCRETE MANHOLE
MH-102	4' DIAMETER PRECAST CONCRETE MANHOLE
MH-103	4' DIAMETER PRECAST CONCRETE MANHOLE
MH-104	4' DIAMETER PRECAST CONCRETE MANHOLE
MH-105	4' DIAMETER PRECAST CONCRETE MANHOLE
MH-106	4' DIAMETER PRECAST CONCRETE MANHOLE
MH-107	4' DIAMETER PRECAST CONCRETE MANHOLE
MH-108	4' DIAMETER PRECAST CONCRETE MANHOLE
MH-109	4' DIAMETER PRECAST CONCRETE MANHOLE
OCS-101	OUTLET CONTROL STRUCTURE
OCS-102	OUTLET CONTROL STRUCTURE
OCS-103	OUTLET CONTROL STRUCTURE
RL-101	ROOF LEADER
RL-102	ROOF LEADER
RL-201	ROOF LEADER
RL-202	ROOF LEADER
TD-101	HEAVY DUTY PRECAST CONCRETE TRENCH DRAIN
TD-102	HEAVY DUTY PRECAST CONCRETE TRENCH DRAIN
TD-103	HEAVY DUTY PRECAST CONCRETE TRENCH DRAIN
WQ-101	WATER QUALITY STRUCTURE PEAK DIVERSION RAPTERRA 16'x8' VAULT
WQ-102	WATER QUALITY STRUCTURE PEAK DIVERSION RAPTERRA 14'X6' VAULT
WQ-103	WATER QUALITY STRUCTURE PEAK DIVERSION RAPTERRA 12'X6' VAULT
WQ-104	WATER QUALITY STRUCTURE PEAK DIVERSION RAPTERRA 10'X6' VAULT
YD-101	12" NYLOPLAST DRAIN WITH STANDARD GRATE
YD-102	12" NYLOPLAST DRAIN WITH SOLID COVER
YD-103	12" NYLOPLAST DRAIN WITH SOLID COVER
YD-104	12" NYLOPLAST DRAIN WITH SOLID COVER
YD-105	18" NYLOPLAST DRAIN WITH SOLID COVER
YD-106	15" NYLOPLAST DRAIN WITH SOLID COVER
YD-107	15" NYLOPLAST DRAIN WITH SOLID COVER
YD-108	15" NYLOPLAST DRAIN WITH SOLID COVER
YD-109	18" NYLOPLAST DRAIN WITH SOLID COVER
YD-110	18" NYLOPLAST DRAIN WITH SOLID COVER
YD-111	18" NYLOPLAST DRAIN WITH SOLID COVER
YD-112	15" NYLOPLAST DRAIN WITH SOLID COVER
YD-113	18" NYLOPLAST DRAIN WITH SOLID COVER

Note:
Contractor to submit shop drawings to the engineer of record for review and approval prior to commencement of construction.

LEGEND

o— — — —o	PROPERTY LINE
600	EXISTING MAJOR CONTOUR
599	EXISTING MINOR CONTOUR
600	PROPOSED MAJOR CONTOUR
601	PROPOSED MINOR CONTOUR
▬▭▬▭▬	PROPOSED DRAINAGE PIPE
▥	PROPOSED CATCH BASIN
●	PROPOSED DRAINAGE MANHOLE
◁	PROPOSED FLARED END SECTION

Date	Description	No.

Revisions

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Parsippany, NJ 07054

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Project

DATA CENTER AT BELL WORKS

BLOCK NO. 11, LOT NO. 11 38.07
A PORTION OF BLOCK NO. 11, LOT NO. 38.05
HOLMDEL TOWNSHIP
MONMOUTH COUNTY **NEW JERSEY**

Drawing Title

DRAINAGE PLAN

Project No.
102054601
Date
7/24/2026
Drawn By
ET
Checked By
BMW
Drawing No.
CG102

Project No. 102054601

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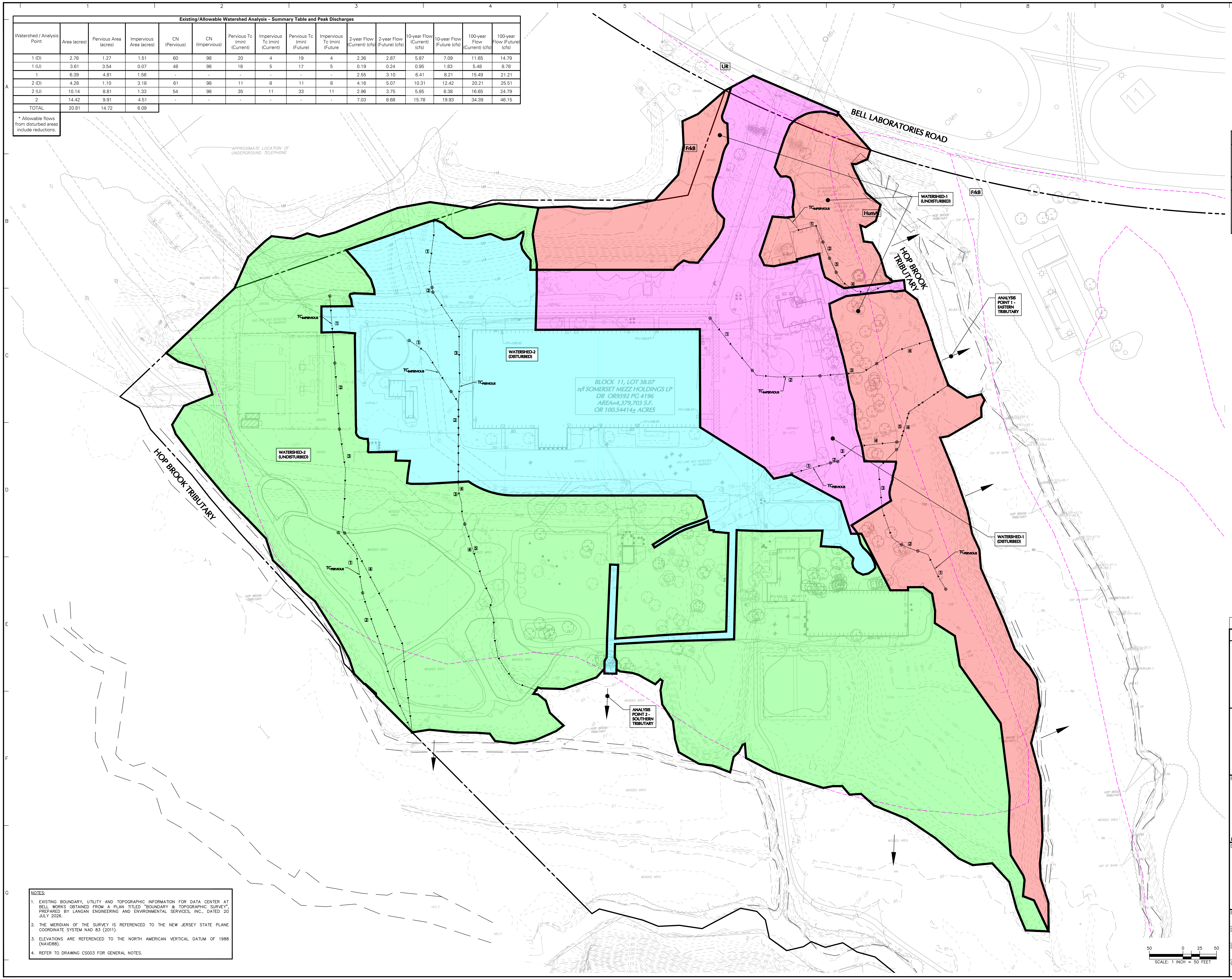
Existing/Allowable Watershed Analysis – Summary Table and Peak Discharges															
Watershed / Analysis Point	Area (acres)	Pervious Area (acres)	Impervious Area (acres)	CN (Pervious)	CN (Impervious)	Pervious Tc (min) (Current)	Impervious Tc (min) (Current)	Pervious Tc (min) (Future)	Impervious Tc (min) (Future	2-year Flow (Current) (cfs)	2-year Flow (Future) (cfs)	10-year Flow (Current) (cfs)	10-year Flow (Future (cfs)	100-year Flow (Current) (cfs)	100-year Flow (Future) (cfs)
1 (D)	2.78	1.27	1.51	60	98	20	4	19	4	2.36	2.87	5.87	7.09	11.65	14.79
1 (U)	3.61	3.54	0.07	48	98	18	5	17	5	0.19	0.24	0.95	1.83	5.48	8.78
1	6.39	4.81	1.58	-	-	-	-	-	-	2.55	3.10	6.41	8.21	15.49	21.21
2 (D)	4.28	1.10	3.18	61	98	11	8	11	8	4.16	5.07	10.31	12.42	20.21	25.51
2 (U)	10.14	8.81	1.33	54	98	35	11	33	11	2.96	3.75	5.85	8.38	16.65	24.79
2	14.42	9.91	4.51	-	-	-	-	-	-	7.03	8.68	15.78	19.93	34.39	46.15
TOTAL	20.81	14.72	6.09												

* Allowable flows from disturbed areas include reductions.


NJ NAD 83 (2011)
BELL LABORATORIES ROAD
HOP BROOK TRIBUTARY
HOP BROOK TRIBUTARY
APPROXIMATE LOCATION OF UNDERGROUND TELEPHONE
UR
FrkB
FrkB
HumAt
WATERSHED-1 (UNDISTURBED)
WATERSHED-1 (DISTURBED)
WATERSHED-2 (DISTURBED)
WATERSHED-2 (UNDISTURBED)
ANALYSIS POINT 1 - EASTERN TRIBUTARY
ANALYSIS POINT 2 - SOUTHERN TRIBUTARY
TCIMPERVIOUS
TCPERVIOUS
BLOCK 11, LOT 38.07
n/f SOMERSET MEZZ HOLDINGS LP
DB OR9592 PG 4196
AREA=4,379,703 S.F.
OR 100.54414± ACRES
FF=108.60
FF=108.67
FF=108.47
FF=108.81
ASPHALT
GAS LINE NOT DETECTED BY MARKOUT
WOODED AREA
1
2
3
4
5

SOIL LEGEND

FrkB	FREEHOLD SANDY LOAM
HumAt	HUMAQUEPTS
UR	URBAN LAND

LEGEND

o— — — —o	PROPERTY LINE
▬▬	WATERSHED BOUNDARY
---▶-----▶---	TIME OF CONCENTRATION LINE
— — — —	SOIL BOUNDARY

NOTES:

1. EXISTING BOUNDARY, UTILITY AND TOPOGRAPHIC INFORMATION FOR DATA CENTER AT BELL WORKS OBTAINED FROM A PLAN TITLED "BOUNDARY & TOPOGRAPHIC SURVEY", PREPARED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC., DATED 20 JULY 2026.
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50 0 25 50
SCALE: 1 INCH = 50 FEET

Date	Description	No.
Revisions		

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Project

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BLOCK NO. 11, LOT NO. 11 38.07
A PORTION OF BLOCK NO. 11, LOT NO. 38.05
HOLMDEL TOWNSHIP
MONMOUTH COUNTY **NEW JERSEY**

Drawing Title

EXISTING WATERSHED AREA MAP

Project No.
102054601
Date
7/24/2026
Drawn By
ET
Checked By
BMW

Drawing No.
DA101

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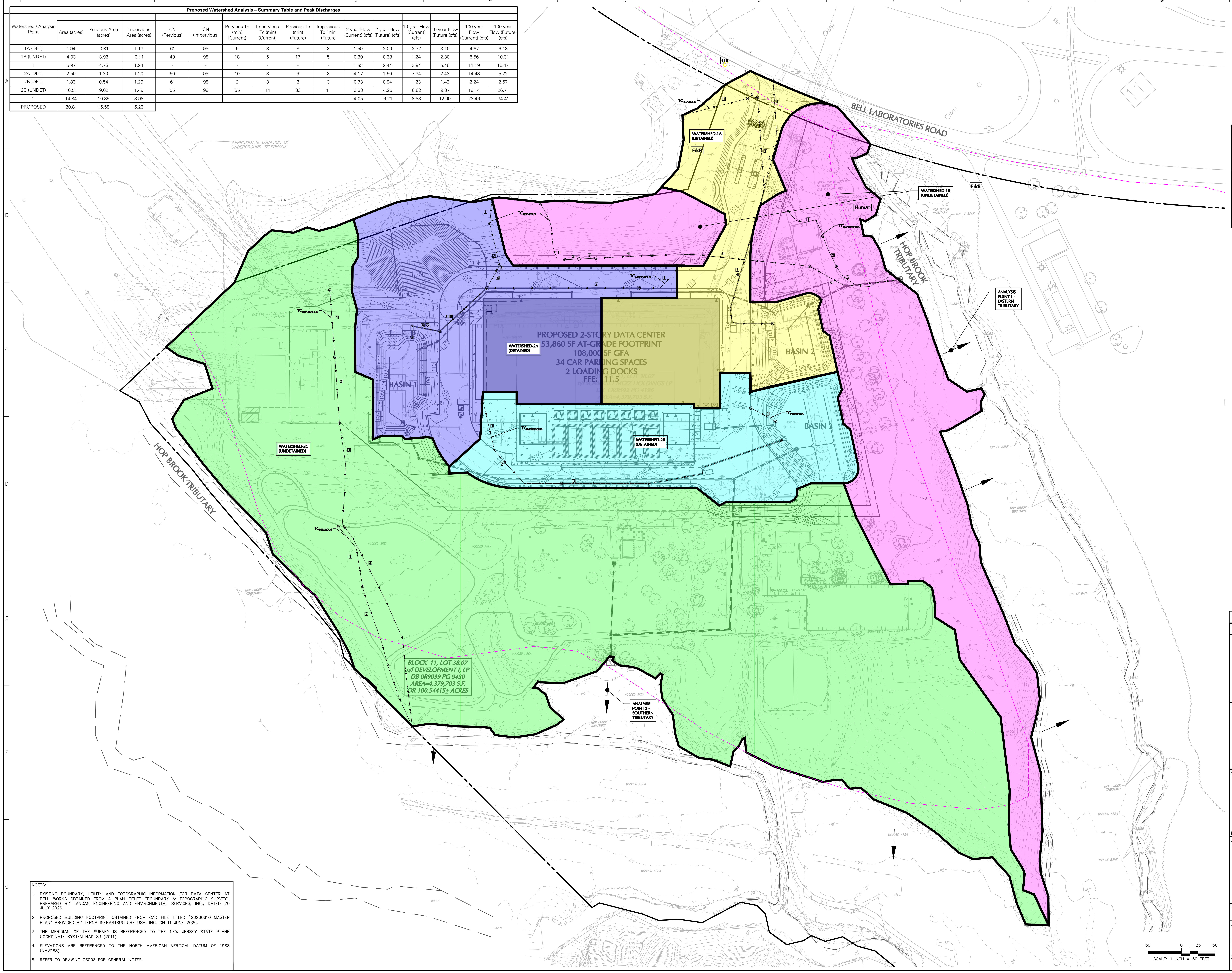
Proposed Watershed Analysis – Summary Table and Peak Discharges

Watershed / Analysis Point	Area (acres)	Pervious Area (acres)	Impervious Area (acres)	CN (Pervious)	CN (Impervious)	Pervious Tc (min) (Current)	Impervious Tc (min) (Current)	Pervious Tc (min) (Future)	Impervious Tc (min) (Future	2-year Flow (Current) (cfs)	2-year Flow (Future) (cfs)	10-year Flow (Current) (cfs)	10-year Flow (Future (cfs)	100-year Flow (Current) (cfs)	100-year Flow (Future) (cfs)
1A (DET)	1.94	0.81	1.13	61	98	9	3	8	3	1.59	2.09	2.72	3.16	4.67	6.18
1B (UNDET)	4.03	3.92	0.11	49	98	18	5	17	5	0.30	0.38	1.24	2.30	6.56	10.31
1	5.97	4.73	1.24	-	-	-	-	-	-	1.83	2.44	3.94	5.46	11.19	16.47
2A (DET)	2.50	1.30	1.20	60	98	10	3	9	3	4.17	1.60	7.34	2.43	14.43	5.22
2B (DET)	1.83	0.54	1.29	61	98	2	3	2	3	0.73	0.94	1.23	1.42	2.24	2.67
2C (UNDET)	10.51	9.02	1.49	55	98	35	11	33	11	3.33	4.25	6.62	9.37	18.14	26.71
2	14.84	10.85	3.98	-	-	-	-	-	-	4.05	6.21	8.83	12.99	23.46	34.41
PROPOSED	20.81	15.58	5.23												


BELL LABORATORIES ROAD
HOP BROOK TRIBUTARY
HOP BROOK TRIBUTARY
APPROXIMATE LOCATION OF UNDERGROUND TELEPHONE
NJ NAD 83 (2011)
UR
FrkB
HumAt
WATERSHED-1A (DETAINED)
WATERSHED-1B (UNDETAINED)
WATERSHED-2A (DETAINED)
WATERSHED-2B (DETAINED)
WATERSHED-2C (UNDETAINED)
BASIN 1
BASIN 2
BASIN 3
TC PERVIOUS
TC IMPERVIOUS
PROPOSED 2-STORY DATA CENTER
53,860 SF AT-GRADE FOOTPRINT
108,000 SF GFA
34 CAR PARKING SPACES
2 LOADING DOCKS
FFE: 11.5
ANALYSIS POINT 1 - EASTERN TRIBUTARY
ANALYSIS POINT 2 - SOUTHERN TRIBUTARY
BLOCK 11, LOT 38.07
n/f DEVELOPMENT I, LP
DB 0R9039 PG 9430
AREA=4,379,703 S.F.
OR 100.54415± ACRES
WOODED AREA
50 0 25 50
SCALE: 1 INCH = 50 FEET

SOIL LEGEND

FrkB	FREEHOLD SANDY LOAM
HumAt	HUMAQUEPTS
UR	URBAN LAND

LEGEND

- PROPERTY LINE
- WATERSHED BOUNDARY
- TIME OF CONCENTRATION LINE
- SOIL BOUNDARY

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A PORTION OF BLOCK NO. 11, LOT NO. 38.05
HOLMDEL TOWNSHIP
MONMOUTH COUNTY NEW JERSEY

Drawing Title
PROPOSED WATERSHED AREA MAP

Project No.
102054601
Date
7/24/2026
Drawn By
ET
Checked By
BMW
Drawing No.
DA102

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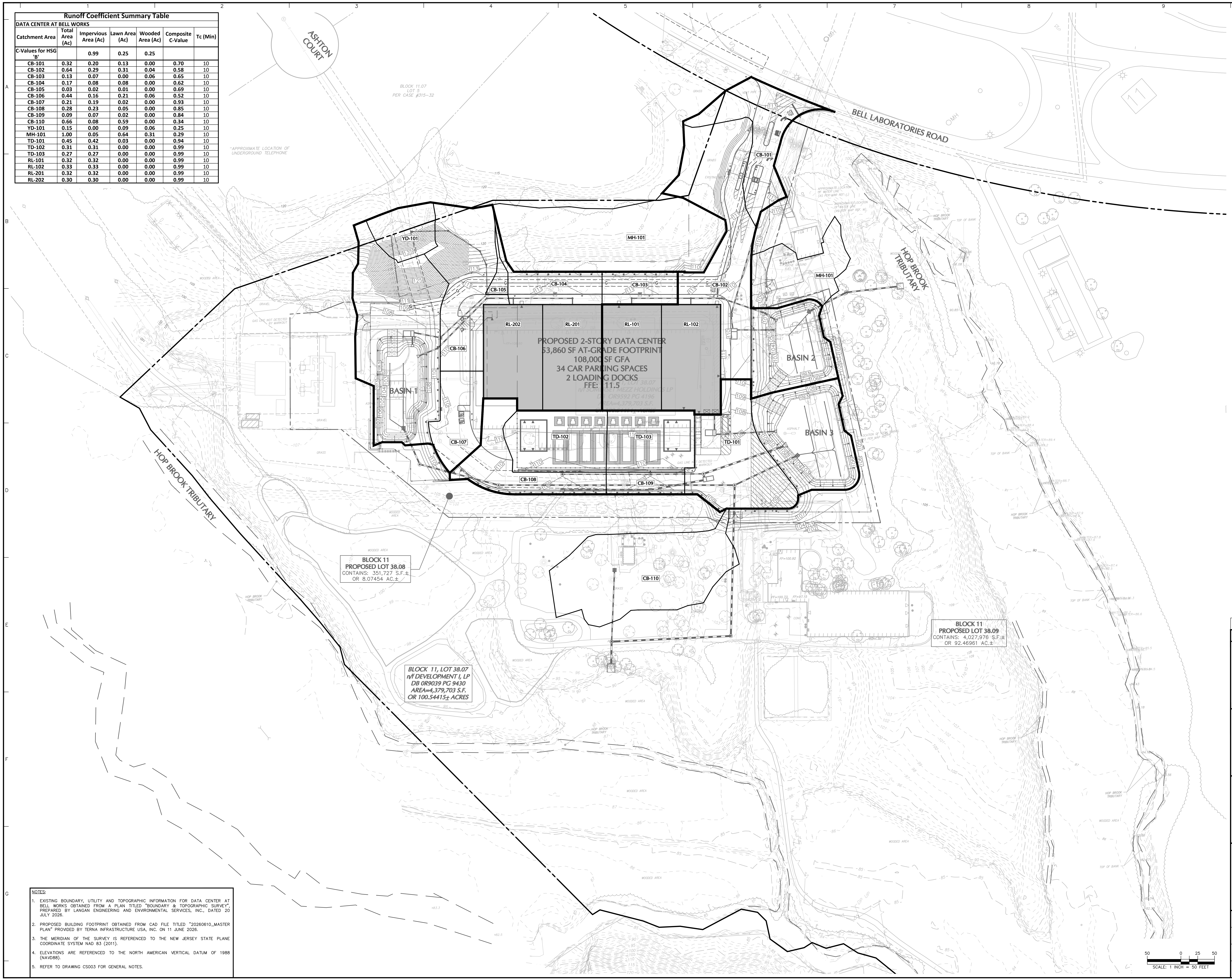
Runoff Coefficient Summary Table

DATA CENTER AT BELL WORKS

Catchment Area	Total Area (Ac)	Impervious Area (Ac)	Lawn Area (Ac)	Wooded Area (Ac)	Composite C-Value	Tc (Min)
C-Values for HSG 'B'		0.99	0.25	0.25		
CB-101	0.32	0.20	0.13	0.00	0.70	10
CB-102	0.64	0.29	0.31	0.04	0.58	10
CB-103	0.13	0.07	0.00	0.06	0.65	10
CB-104	0.17	0.08	0.08	0.00	0.62	10
CB-105	0.03	0.02	0.01	0.00	0.69	10
CB-106	0.44	0.16	0.21	0.06	0.52	10
CB-107	0.21	0.19	0.02	0.00	0.93	10
CB-108	0.28	0.23	0.05	0.00	0.85	10
CB-109	0.09	0.07	0.02	0.00	0.84	10
CB-110	0.66	0.08	0.59	0.00	0.34	10
YD-101	0.15	0.00	0.09	0.06	0.25	10
MH-101	1.00	0.05	0.64	0.31	0.29	10
TD-101	0.45	0.42	0.03	0.00	0.94	10
TD-102	0.31	0.31	0.00	0.00	0.99	10
TD-103	0.27	0.27	0.00	0.00	0.99	10
RL-101	0.32	0.32	0.00	0.00	0.99	10
RL-102	0.33	0.33	0.00	0.00	0.99	10
RL-201	0.32	0.32	0.00	0.00	0.99	10
RL-202	0.30	0.30	0.00	0.00	0.99	10



ASHTON COURT
BELL LABORATORIES ROAD
HOP BROOK TRIBUTARY
BLOCK 11.07 LOT 5 PER CASE #315-32
APPROXIMATE LOCATION OF UNDERGROUND TELEPHONE
YD-101
MH-101
CB-101
CB-102
CB-103
CB-104
CB-105
CB-106
CB-107
CB-108
CB-109
CB-110
RL-202
RL-201
RL-101
RL-102
TD-101
TD-102
TD-103
BASIN 1
BASIN 2
BASIN 3
PROPOSED 2-STORY DATA CENTER
53,860 SF AT-GRADE FOOTPRINT
108,000 SF GFA
34 CAR PARKING SPACES
2 LOADING DOCKS
FFE: 11.5
BLOCK 11
PROPOSED LOT 38.08
CONTAINS: 351,727 S.F.±
OR 8.07454 AC.±
BLOCK 11
PROPOSED LOT 38.09
CONTAINS: 4,027,976 S.F.±
OR 92.46961 AC.±
BLOCK 11, LOT 38.07
n/f DEVELOPMENT I, LP
DB 0R9039 PG 9430
AREA=4,379,703 S.F.
OR 100.54415± ACRES
NJ NAD 83 (2011)
50 0 25 50
SCALE: 1 INCH = 50 FEET

SOIL LEGEND

FrkB	FREEHOLD SANDY LOAM
HumAt	HUMAQUEPTS
UR	URBAN LAND

LEGEND

○- - -○	PROPERTY LINE
▬	WATERSHED BOUNDARY

NOTES:

1. EXISTING BOUNDARY, UTILITY AND TOPOGRAPHIC INFORMATION FOR DATA CENTER AT BELL WORKS OBTAINED FROM A PLAN TITLED "BOUNDARY & TOPOGRAPHIC SURVEY", PREPARED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC., DATED 20 JULY 2026.
2. PROPOSED BUILDING FOOTPRINT OBTAINED FROM CAD FILE TITLED "20260610_MASTER PLAN" PROVIDED BY TERNA INFRASTRUCTURE USA, INC. ON 11 JUNE 2026.
3. THE MERIDIAN OF THE SURVEY IS REFERENCED TO THE NEW JERSEY STATE PLANE COORDINATE SYSTEM NAD 83 (2011).
4. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
5. REFER TO DRAWING CS003 FOR GENERAL NOTES.

Date	Description	No.

Revisions

LANGAN
Langan Engineering and
Environmental Services, LLC
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com
NJ Certificate of Authorization No. 24GA27996400

Project

DATA CENTER AT BELL WORKS

BLOCK NO. 11, LOT NO. 11 38.07
A PORTION OF BLOCK NO. 11, LOT NO. 38.05
HOLMDEL TOWNSHIP
MONMOUTH COUNTY NEW JERSEY

Drawing Title

INLET CATCHMENT AREA MAP

Project No. 102054601	Drawing No. DA103
Date 7/24/2026	
Drawn By ET	
Checked By BMW	

Project No. 102054601

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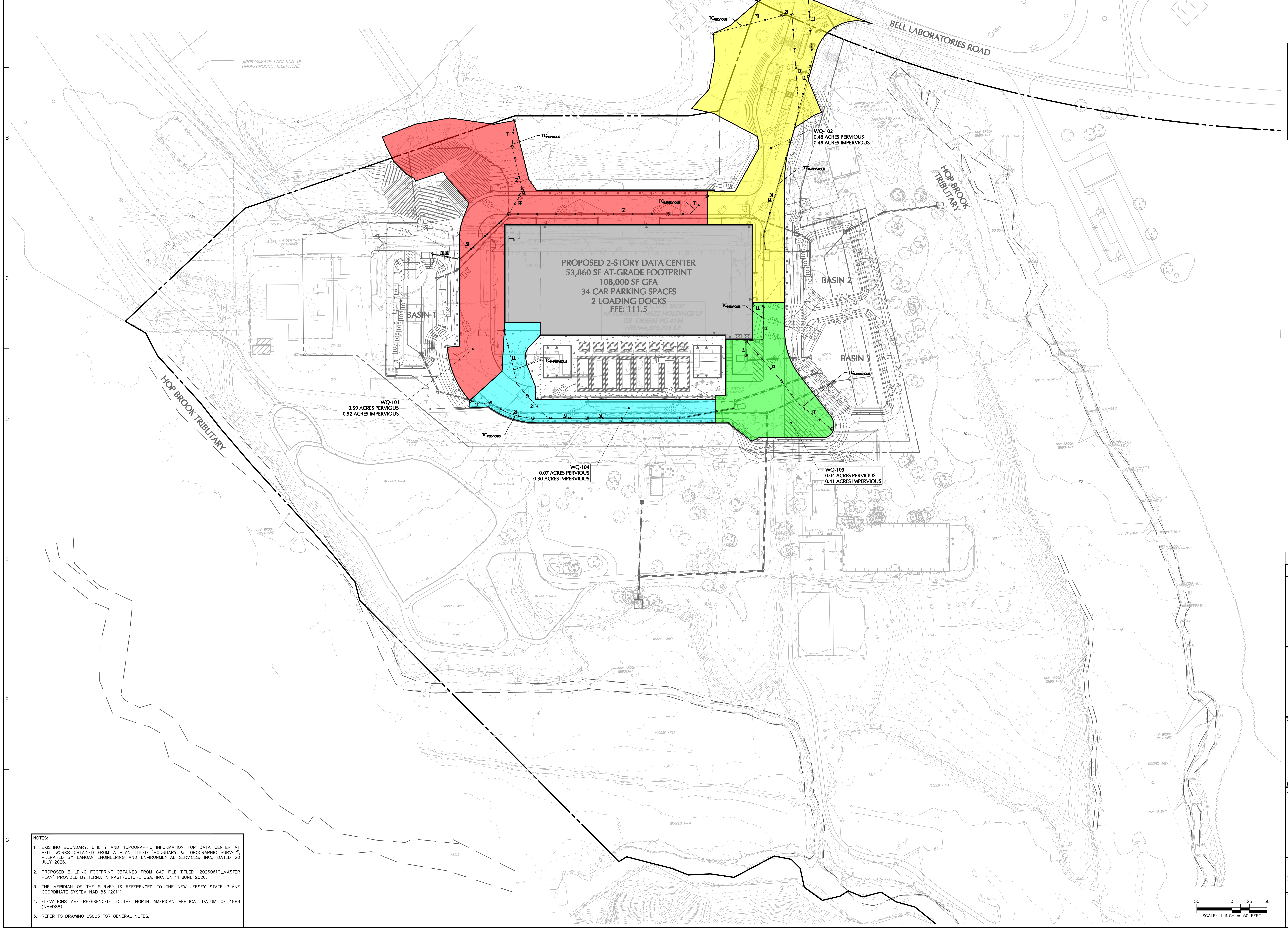
Water Quality Summary Table								
Watershed / Analysis Point	Area (acres)	Pervious Area (acres)	Impervious Area (acres)	CN (Pervious)	CN (Impervious)	Pervious Tc (min)	Impervious Tc (min)	Peak Flow Rate (Water-Quality Storm) (cfs)
WQ-101	1.11	0.59	0.52	60	98	10	2	1.57
WQ-102	0.96	0.48	0.48	61	98	8	3	1.45
WQ-103	0.45	0.04	0.41	61	98	2	2	1.24
WQ-104	0.37	0.07	0.30	61	98	6	4	0.88


BELL LABORATORIES ROAD
HOP BROOK TRIBUTARY
HOP BROOK TRIBUTARY
NJ NAD 83 (2011)
APPROXIMATE LOCATION OF UNDERGROUND TELEPHONE
PROPOSED 2-STORY DATA CENTER
53,860 SF AT-GRADE FOOTPRINT
108,000 SF GFA
34 CAR PARKING SPACES
2 LOADING DOCKS
FFE: 111.5
BASIN 1
BASIN 2
BASIN 3
WQ-101
0.59 ACRES PERVIOUS
0.52 ACRES IMPERVIOUS
WQ-102
0.48 ACRES PERVIOUS
0.48 ACRES IMPERVIOUS
WQ-103
0.04 ACRES PERVIOUS
0.41 ACRES IMPERVIOUS
WQ-104
0.07 ACRES PERVIOUS
0.30 ACRES IMPERVIOUS
TC PERVIOUS
TC IMPERVIOUS
WOODED AREA
GRASS

SOIL LEGEND

FrkB	FREEHOLD SANDY LOAM
HumAt	HUMAQUEPTS
UR	URBAN LAND

LEGEND

o— — — —o	PROPERTY LINE
▬▬▬	WATERSHED BOUNDARY
---▸------▸---	TIME OF CONCENTRATION LINE

NOTES:

1. EXISTING BOUNDARY, UTILITY AND TOPOGRAPHIC INFORMATION FOR DATA CENTER AT BELL WORKS OBTAINED FROM A PLAN TITLED "BOUNDARY & TOPOGRAPHIC SURVEY", PREPARED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC., DATED 20 JULY 2026.
2. PROPOSED BUILDING FOOTPRINT OBTAINED FROM CAD FILE TITLED "20260610_MASTER PLAN" PROVIDED BY TERNA INFRASTRUCTURE USA, INC. ON 11 JUNE 2026.
3. THE MERIDIAN OF THE SURVEY IS REFERENCED TO THE NEW JERSEY STATE PLANE COORDINATE SYSTEM NAD 83 (2011).
4. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
5. REFER TO DRAWING CS003 FOR GENERAL NOTES.

50 0 25 50
SCALE: 1 INCH = 50 FEET

Date	Description	No.
Revisions		

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300 Kimball Drive
Parsippany, NJ 07054

T: 973.560.4900 F: 973.560.4901 www.langan.com
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Project

DATA CENTER AT BELL WORKS

BLOCK NO. 11, LOT NO. 11 38.07
A PORTION OF BLOCK NO. 11, LOT NO. 38.05
HOLMDEL TOWNSHIP
MONMOUTH COUNTY **NEW JERSEY**

Drawing Title

TREATMENT DEVICE DRAINAGE AREA MAP

Project No. **102054601**
Date **7/24/2026**
Drawn By **ET**
Checked By **BMW**
Drawing No. DA104

LANGAN
Project No. 102054601

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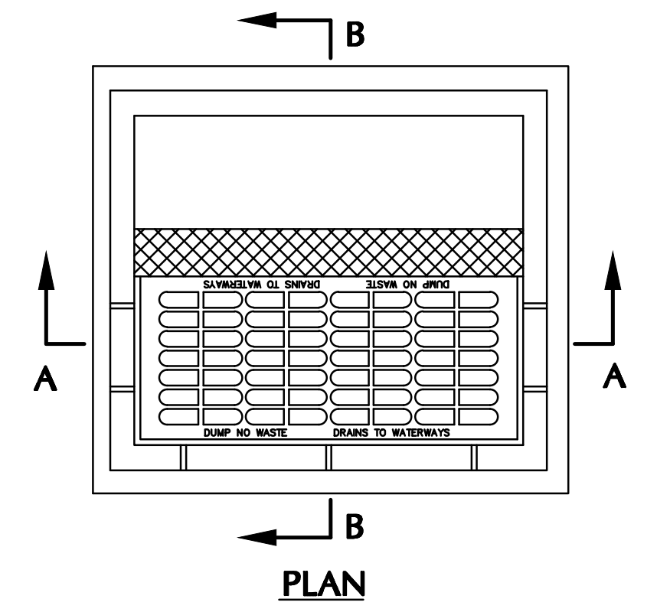
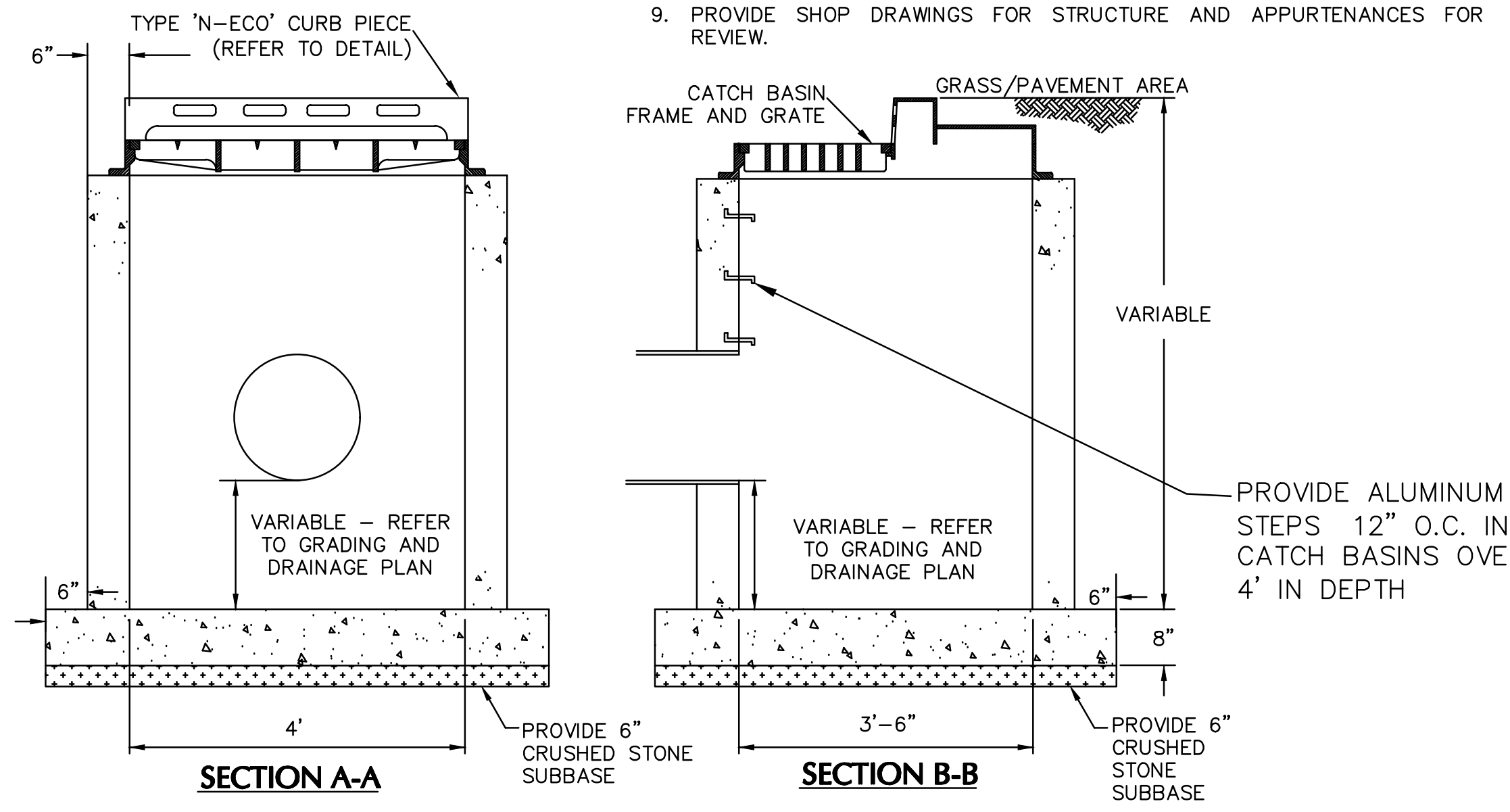


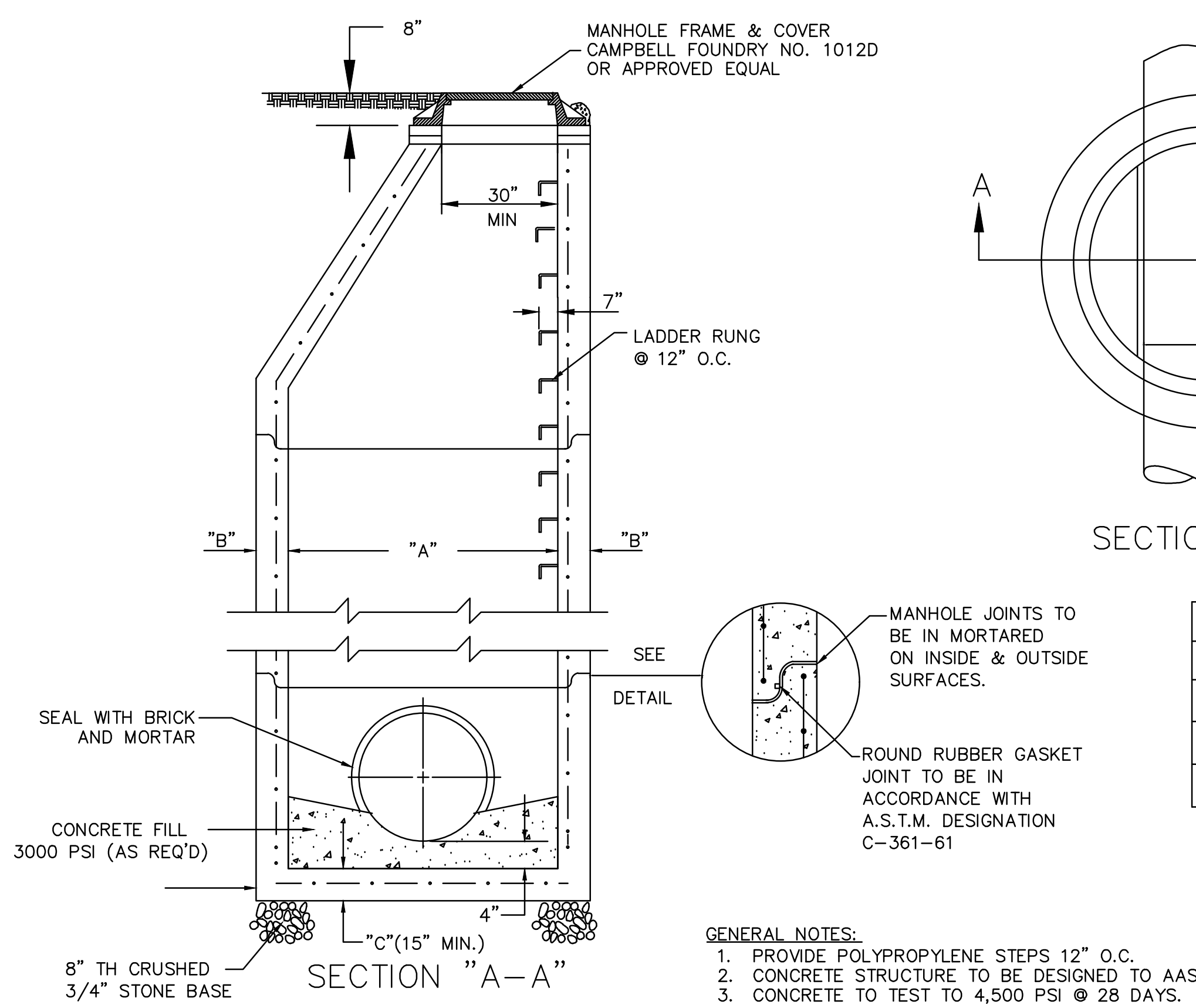
GENERAL NOTES

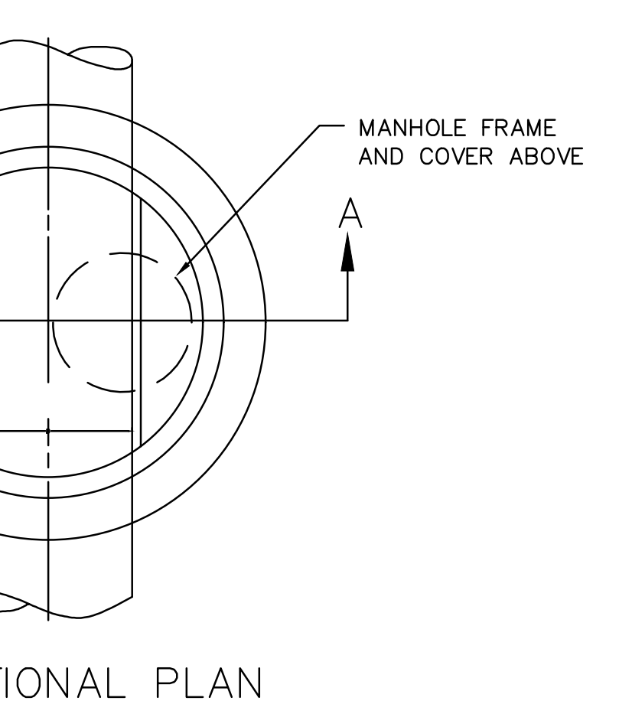
1. THE PRECAST MANUFACTURER IS RESPONSIBLE FOR STRUCTURAL DESIGN OF ALL PROPOSED PRECAST STRUCTURES. CONTRACTOR MUST PROVIDE SHOP DRAWINGS FOR REVIEW.
2. FOOTER AND INVERT TO BE NJDOT CLASS "C" CONCRETE.
3. IF WALL CONSTRUCTION OTHER THAN CONCRETE THE WALLS SHALL BE PLASTERED BOTH INSIDE AND OUTSIDE WITH 1/2" THICK CEMENT PLASTER.
4. CASTING TO BE CAMPBELL FOUNDRY NO. 2618 OR EQUIVALENT WITH TYPE N – ECO CURB PIECE
5. PROVIDE ALUMINUM ALCO STEPS 6061T6 12" O.C. IN CATCH BASIN OVER 4' IN DEPTH. MAX. DIST. BETWEEN BOTTOM STEP AND BOTTOM OF INLET SHALL BE 18".
6. WHEN ADDITIONAL DEPTH IS SCHEDULED WALLS BELOW THE DEPTH OF 8'–0" MEASURED FROM THE INLET GUTTER TO INVERT, SHALL BE 12" THICK IF CONCRETE OR DOUBLE BLOCK IF BLOCK. THE FOUNDATION DIMENSION SHALL BE INCREASED 12" IN WIDTH AND TO 12" IN DEPTH.
7. SHALL MEET NJDOT STANDARDS AND H20 LOADING.
8. PRECAST MANUFACTURER IS RESPONSIBLE FOR STRUCTURAL DESIGN OF ALL PROPOSED PRECAST STRUCTURES.
9. PROVIDE SHOP DRAWINGS FOR STRUCTURE AND APPURTENANCES FOR REVIEW.


TYPE 'N-ECO' CURB PIECE (REFER TO DETAIL)
6"
CATCH BASIN FRAME AND GRATE
GRASS/PAVEMENT AREA
VARIABLE
PROVIDE ALUMINUM STEPS 12" O.C. IN CATCH BASINS OVER 4' IN DEPTH
VARIABLE – REFER TO GRADING AND DRAINAGE PLAN
VARIABLE – REFER TO GRADING AND DRAINAGE PLAN
6"
6"
8"
4'
3'-6"
PROVIDE 6" CRUSHED STONE SUBBASE
PROVIDE 6" CRUSHED STONE SUBBASE
SECTION A-A
SECTION B-B

1 TYPE 'B' CATCH BASIN WITH CURB PIECE

NTS


8"
MANHOLE FRAME & COVER CAMPBELL FOUNDRY NO. 1012D OR APPROVED EQUAL
30" MIN
7"
LADDER RUNG @ 12" O.C.
"B"
"A"
"B"
SEE DETAIL
SEAL WITH BRICK AND MORTAR
CONCRETE FILL 3000 PSI (AS REQ'D)
4"
8" TH CRUSHED 3/4" STONE BASE
"C"(15" MIN.)
SECTION "A-A"
MANHOLE JOINTS TO BE MORTARED ON INSIDE & OUTSIDE SURFACES.
ROUND RUBBER GASKET JOINT TO BE IN ACCORDANCE WITH A.S.T.M. DESIGNATION C-361-61


A
A
MANHOLE FRAME AND COVER ABOVE
SECTIONAL PLAN

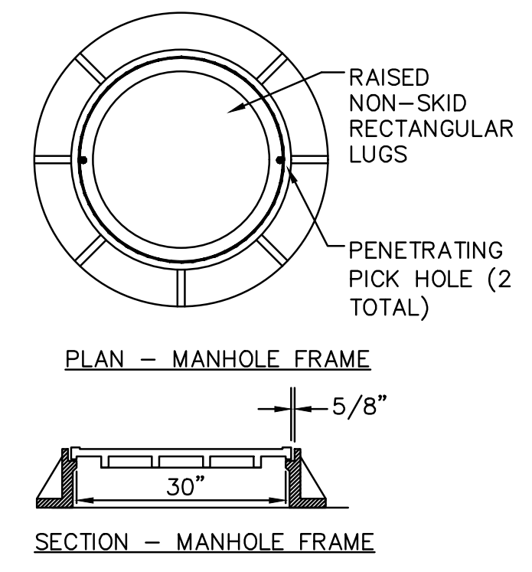
MANHOLE SCHEDULE		
PIPE I.D.	"A" (DIA)	"B"
6"–27"	4'–0" (STD)	5"
27"–33"	5'–0"	6"
33"–42"	6'–0"	8"

GENERAL NOTES:

1. PROVIDE POLYPROPYLENE STEPS 12" O.C.
2. CONCRETE STRUCTURE TO BE DESIGNED TO AASHTO HS–20 LOADING.
3. CONCRETE TO TEST TO 4,500 PSI @ 28 DAYS.
4. CONCRETE STRUCTURE REINFORCING AS PER ASTM A–185.
5. FIRST STEP NOT TO EXCEED 12 INCHES FROM TOP OF RIM.
8. PRECAST MANUFACTURER IS RESPONSIBLE FOR STRUCTURAL DESIGN OF ALL PROPOSED PRECAST STRUCTURES.
9. PROVIDE SHOP DRAWINGS FOR STRUCTURE AND APPURTENANCES FOR REVIEW
10. ADJUST RIM TO GRADE WITH GROUT, BRICK, OR CONCRETE GRADE RINGS. 18" MAXIMUM.
11. THE EXTERIOR SURFACE OF MANHOLE TO BE SEAL COATED WITH COAL TAR OR ASPHALTIC PITCH,

2 STORM DRAINAGE & SANITARY MANHOLE

NTS


RAISED NON-SKID RECTANGULAR LUGS
PENETRATING PICK HOLE (2 TOTAL)
PLAN – MANHOLE FRAME
5/8"
30"
SECTION – MANHOLE FRAME

MANHOLE COVERS AND FRAMES SHALL BE:

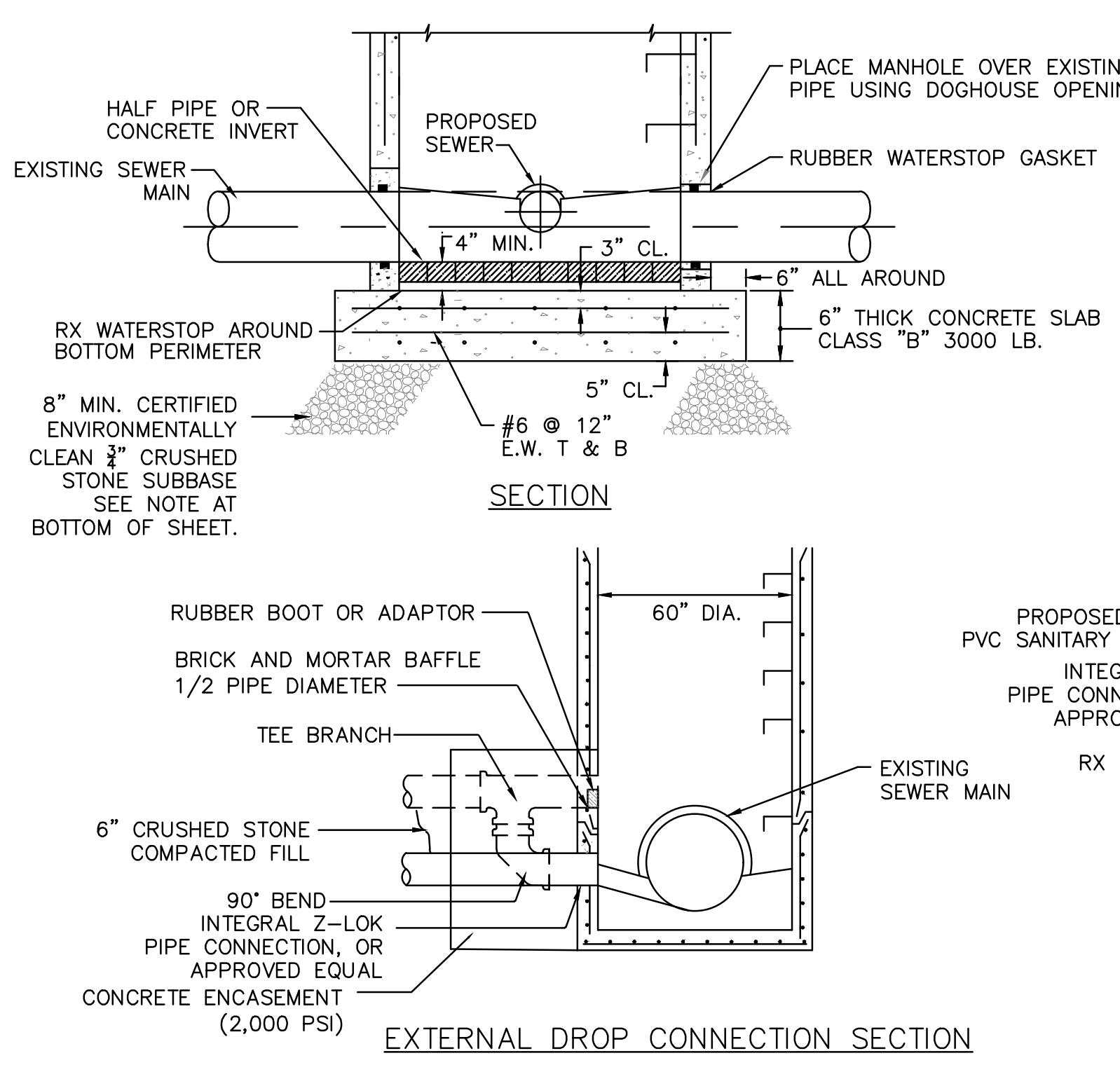
STANDARD (HEAVY TRAFFIC TYPE):
CAMPBELL FOUNDRY COMPANY PATTERN NO. 1012D, OR APPROVED EQUAL.

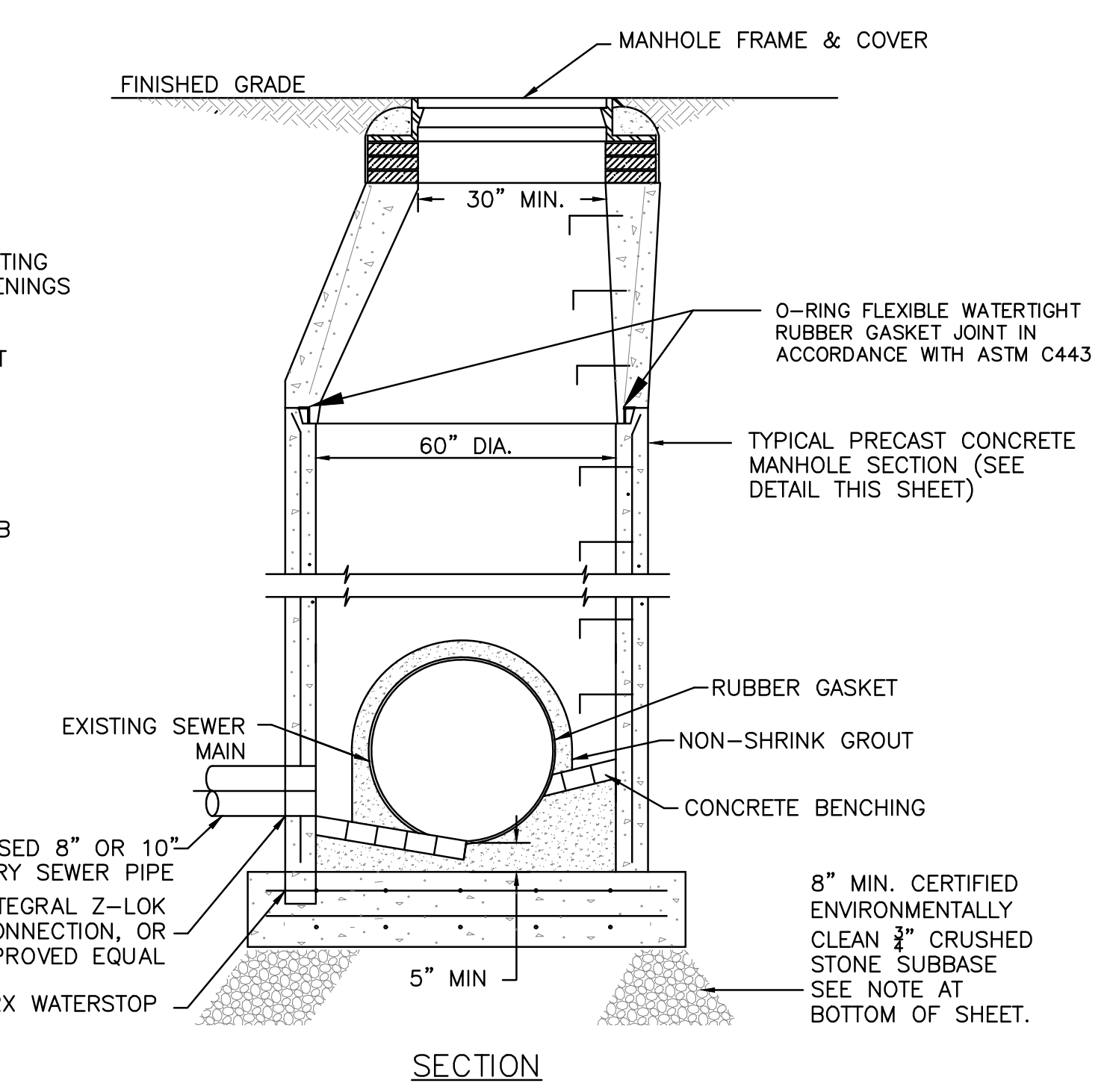
CONSTRUCTION NOTES:

1. MANHOLE FRAME AND COVER CASTINGS SHALL CONFORM TO THE LATEST ASTM A–48 CLASS 30 SPECIFICATION.
2. FRAME AND COVERS SHALL BE COATED WITH TWO COATS OF ASPHALTUM VARNISH.
3. MANHOLE FRAME TO BE LABELED "SANITARY" FOR SANITARY MANHOLES WITHIN PROPERTY.
4. MANHOLE FRAME TO BE LABELED "BOROUGH OF NEW PROVIDENCE SANITARY SEWER" FOR SANITARY MANHOLES WITHIN THE PUBLIC RIGHT–OF–WAY.
5. MANHOLE FRAME TO BE LABELED "STORM" FOR STORM MANHOLES.

3 MANHOLE FRAME AND COVER

NTS


HALF PIPE OR CONCRETE INVERT
EXISTING SEWER MAIN
PROPOSED SEWER
PLACE MANHOLE OVER EXISTING PIPE USING DOGHOUSE OPENINGS
RUBBER WATERSTOP GASKET
4" MIN.
3" CL.
6" ALL AROUND
RX WATERSTOP AROUND BOTTOM PERIMETER
6" THICK CONCRETE SLAB CLASS "B" 3000 LB.
8" MIN. CERTIFIED ENVIRONMENTALLY CLEAN 3/4" CRUSHED STONE SUBBASE SEE NOTE AT BOTTOM OF SHEET.
5" CL.
#6 @ 12" E.W. T & B
SECTION
RUBBER BOOT OR ADAPTOR
60" DIA.
BRICK AND MORTAR BAFFLE 1/2 PIPE DIAMETER
TEE BRANCH
6" CRUSHED STONE COMPACTED FILL
90° BEND
INTEGRAL Z-LOK PIPE CONNECTION, OR APPROVED EQUAL
CONCRETE ENCASEMENT (2,000 PSI)
EXISTING SEWER MAIN
EXTERNAL DROP CONNECTION SECTION

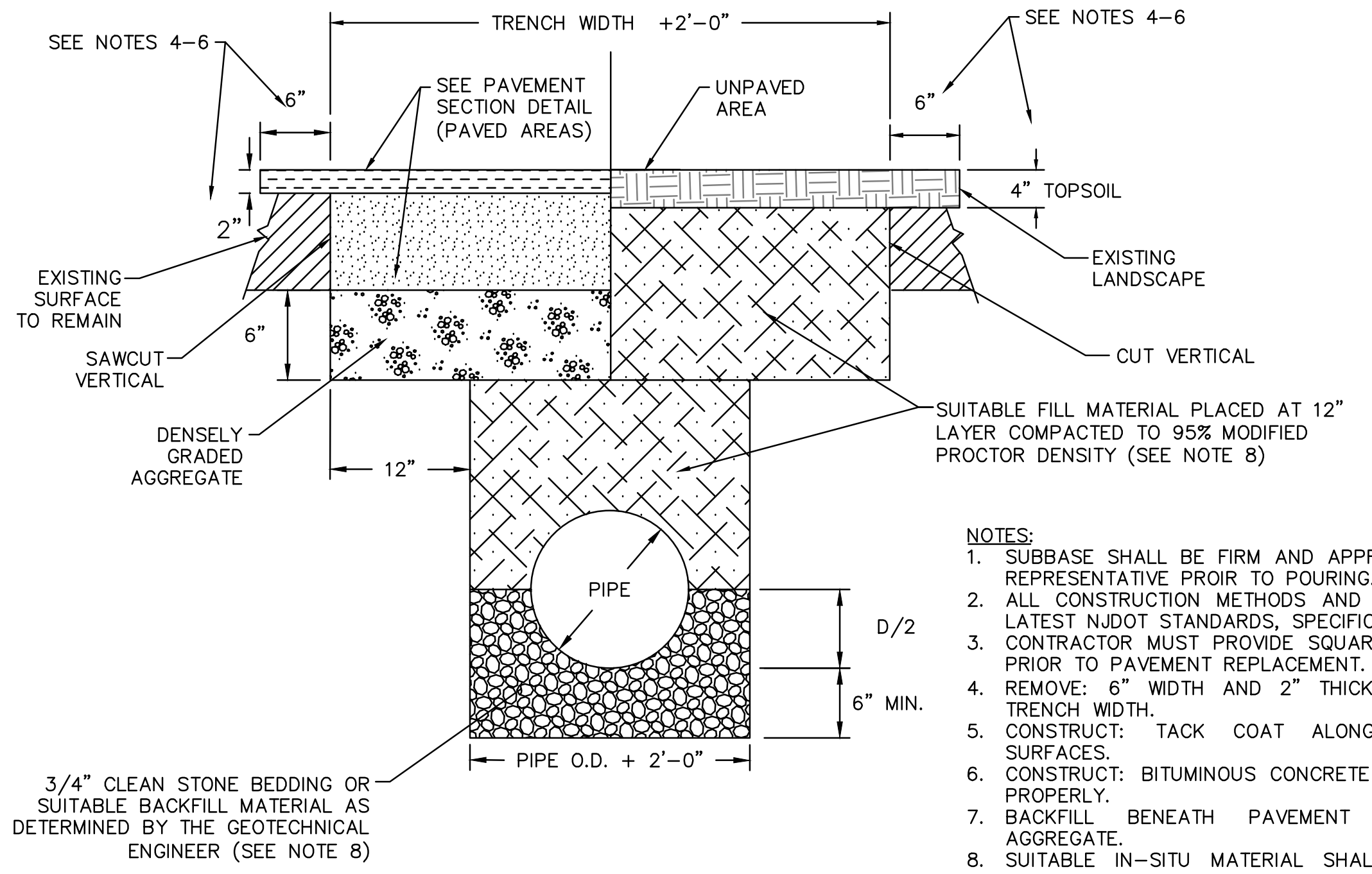

FINISHED GRADE
MANHOLE FRAME & COVER
30" MIN.
O-RING FLEXIBLE WATERTIGHT RUBBER GASKET JOINT IN ACCORDANCE WITH ASTM C443
60" DIA.
TYPICAL PRECAST CONCRETE MANHOLE SECTION (SEE DETAIL THIS SHEET)
EXISTING SEWER MAIN
RUBBER GASKET
NON-SHRINK GROUT
CONCRETE BENCHING
PROPOSED 8" OR 10" PVC SANITARY SEWER PIPE
INTEGRAL Z-LOK PIPE CONNECTION, OR APPROVED EQUAL
RX WATERSTOP
5" MIN
8" MIN. CERTIFIED ENVIRONMENTALLY CLEAN 3/4" CRUSHED STONE SUBBASE SEE NOTE AT BOTTOM OF SHEET.
SECTION

NOTES:

1. MANHOLES SHALL BE CONSTRUCTED TO WITHSTAND H–20 LOADING.
2. PROVIDE EXTERIOR DROP WHEN INVERTS IN AND OUT EXCEED 2 FEET.
3. ENTIRE EXTERIOR TO RECEIVE COATING OF BITUMINOUS SEALER.
4. LATERAL CONNECTIONS INTO EXISTING MANHOLES SHALL NOT BE USED.
5. ALL LIFT HOLES, PIPE CUTOUTS, ETC. ARE TO BE MORTAR AND PLUGGED PRIOR TO PLASTERING.
6. PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL FROM BOROUGH ENGINEER AND DESIGN ENGINEER.
7. PRECASTER RESPONSIBLE FOR STRUCTURAL DESIGN OF MANHOLE.
8. MANHOLE SHALL MEET THE STANDARD SPECIFICATION UNDER ASTM C 478.

4 DOGHOUSE SANITARY SEWER MANHOLE AND EXTERNAL DROP CONNECTION

NTS

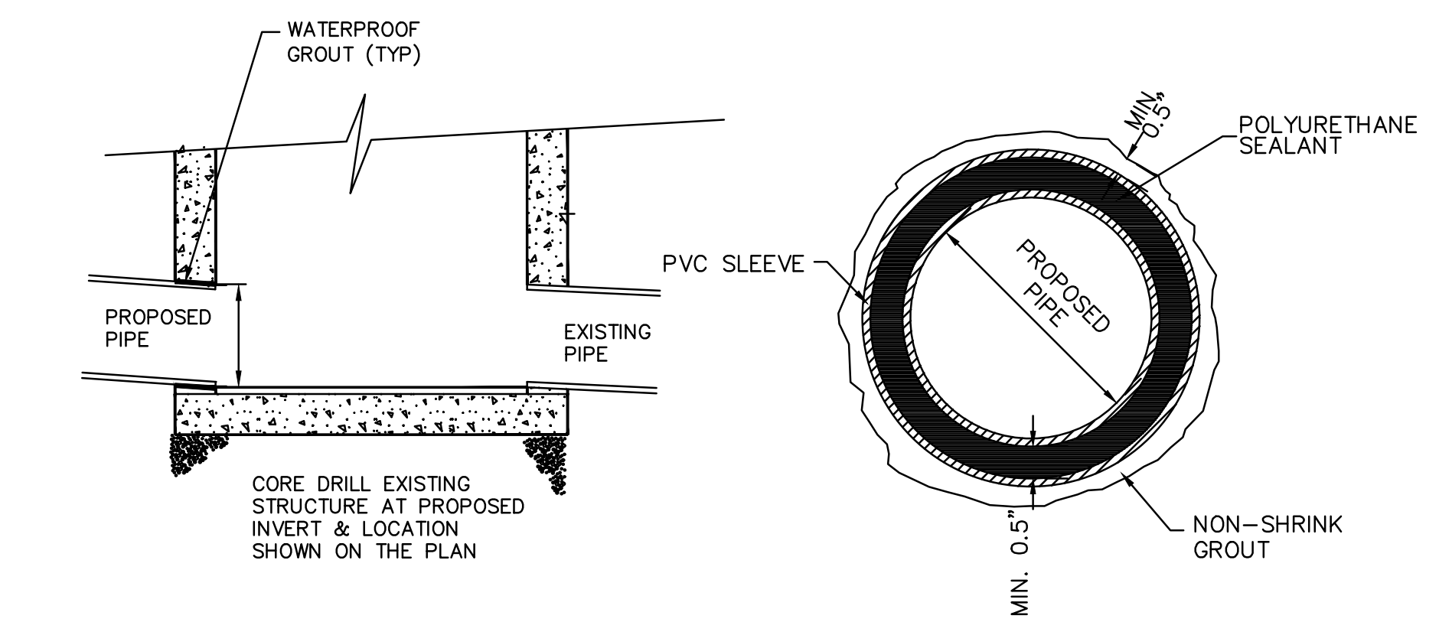

SEE NOTES 4-6
TRENCH WIDTH +2'-0"
SEE NOTES 4-6
6"
SEE PAVEMENT SECTION DETAIL (PAVED AREAS)
UNPAVED AREA
6"
2"
4" TOPSOIL
EXISTING SURFACE TO REMAIN
EXISTING LANDSCAPE
6"
SAWCUT VERTICAL
CUT VERTICAL
DENSELY GRADED AGGREGATE
12"
SUITABLE FILL MATERIAL PLACED AT 12" LAYER COMPACTED TO 95% MODIFIED PROCTOR DENSITY (SEE NOTE 8)
PIPE
D/2
6" MIN.
3/4" CLEAN STONE BEDDING OR SUITABLE BACKFILL MATERIAL AS DETERMINED BY THE GEOTECHNICAL ENGINEER (SEE NOTE 8)
PIPE O.D. + 2'-0"

NOTES:

1. SUBBASE SHALL BE FIRM AND APPROVED BY THE ENGINEER OR HIS REPRESENTATIVE PROIR TO POURING.
2. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO LATEST NJDOT STANDARDS, SPECIFICATIONS AND INSPECTIONS.
3. CONTRACTOR MUST PROVIDE SQUARE AND UNIFORM PAVEMENT CUT PRIOR TO PAVEMENT REPLACEMENT.
4. REMOVE: 6" WIDTH AND 2" THICK TOP SURFACE LAYER BEYOND TRENCH WIDTH.
5. CONSTRUCT: TACK COAT ALONG VERTICAL AND HORIZONTAL SURFACES.
6. CONSTRUCT: BITUMINOUS CONCRETE SURFACE COURSE AND ROLL IT PROPERLY.
7. BACKFILL BENEATH PAVEMENT SHALL BE DENSE GRADED AGGREGATE.
8. SUITABLE IN–SITU MATERIAL SHALL BE USED TO BACKFILL THE UTILITY TRENCH EXCAVATION. SUITABLE FILL MATERIAL SHALL CONSIST OF SAND AND GRAVEL MIXTURE HAVING A MAXIMUM PARTICLE SIZE OF 4 INCHES. ALL IMPORTED FILL MATERIAL MUST MEET THE DEFINITION OF CLEAN FILL DESCRIBED IN NJDEP'S "ALTERNATIVE AND CLEAN FILL GUIDANCE FOR SRP SITES" DATED DECEMBER 2011.

5 PIPE INSTALLATION AND PAVEMENT RESTORATION

NTS

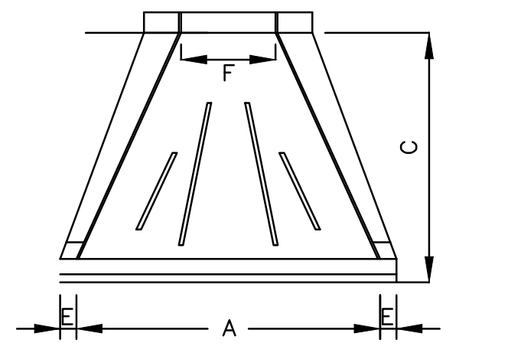

WATERPROOF GROUT (TYP)
PROPOSED PIPE
EXISTING PIPE
CORE DRILL EXISTING STRUCTURE AT PROPOSED INVERT & LOCATION SHOWN ON THE PLAN
PVC SLEEVE
MIN. 0.5"
POLYURETHANE SEALANT
PROPOSED PIPE
MIN. 0.5"
NON-SHRINK GROUT

NOTES:

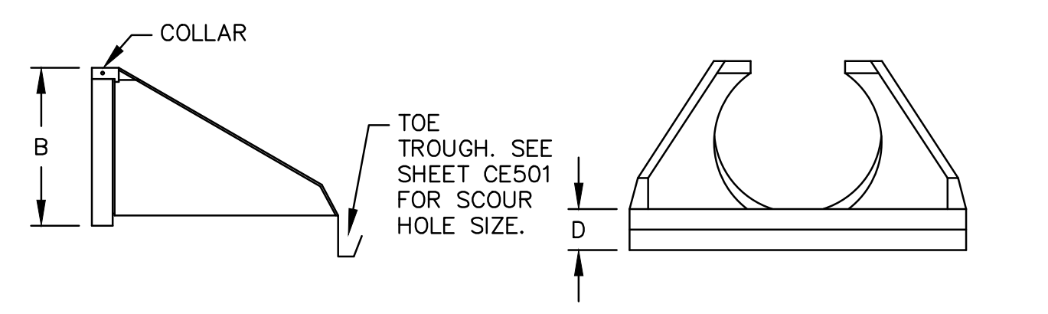
1. CORE–DRILL OPENING IN EXISTING WALL TO ACCOMMODATE PVC SLEEVE WITH MIN. 0.5" CLEARANCE ALL AROUND.
2. SET SLEEVE IN POSITION USING NON–SHRINK GROUT TO ASTM 1107 (SIKA GROUT 212, MANUFACTURED BY SIKA, OR APPROVED EQUIVALENT).
3. PRIOR TO GROUT SETTING, SET UTILITY IN POSITION.
4. SEAL USING POLYURETHANE SEALANT (SIKA FLEX–2C–NF/SL SEALANT, OR APPROVED EQUIVALENT), APPLIED FROM EITHER END TO FILL SLEEVE.
5. CONTROL WATER LEVELS AND KEEP CONNECTION DRY FROM INITIAL CORE–DRILLING TO END OF RECOMMENDED SET TIME OF POLYURETHANE SEALANT.

6 CONNECTION TO EXISTING STRUCTURE

NTS



PIPE DIAMETER (ALL DIMENSIONS IN INCHES)		
DIMENSION	12	15
A	29	29
B	14.2	17.7
C	25	25
D	6.5	6.5
E	6.5	6.5
F (MAX)	10	10

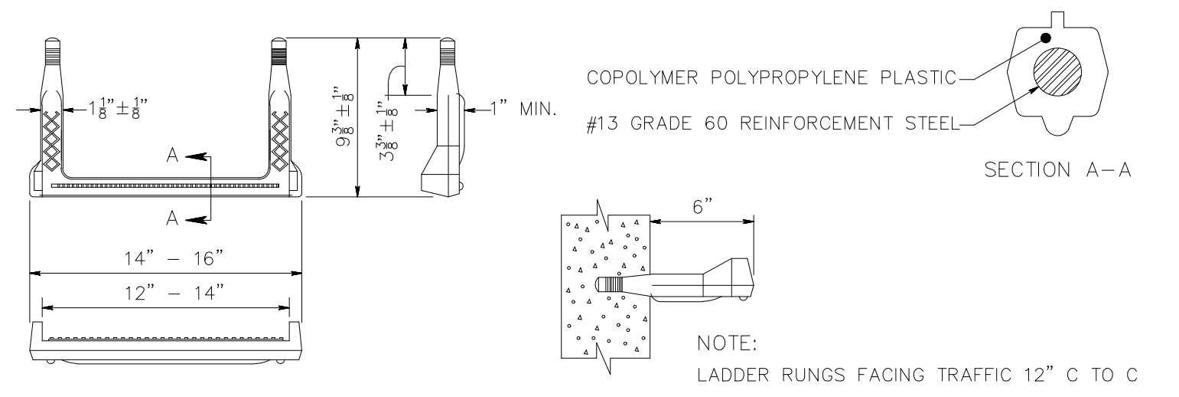

COLLAR
B
TOE TROUGH. SEE SHEET CE501 FOR SCOUR HOLE SIZE.
D

NOTES:

1. PROVIDE SHOP DRAWINGS REVIEW AND APPROVAL.
2. THE HDPE FLARED END SECTIONS SHALL BE IN ACCORDANCE WITH ADS'S HDPE FLARED END SECTION SPECIFICATIONS AND INSTALLATION INSTRUCTIONS.

7 HDPE FLARED END SECTION

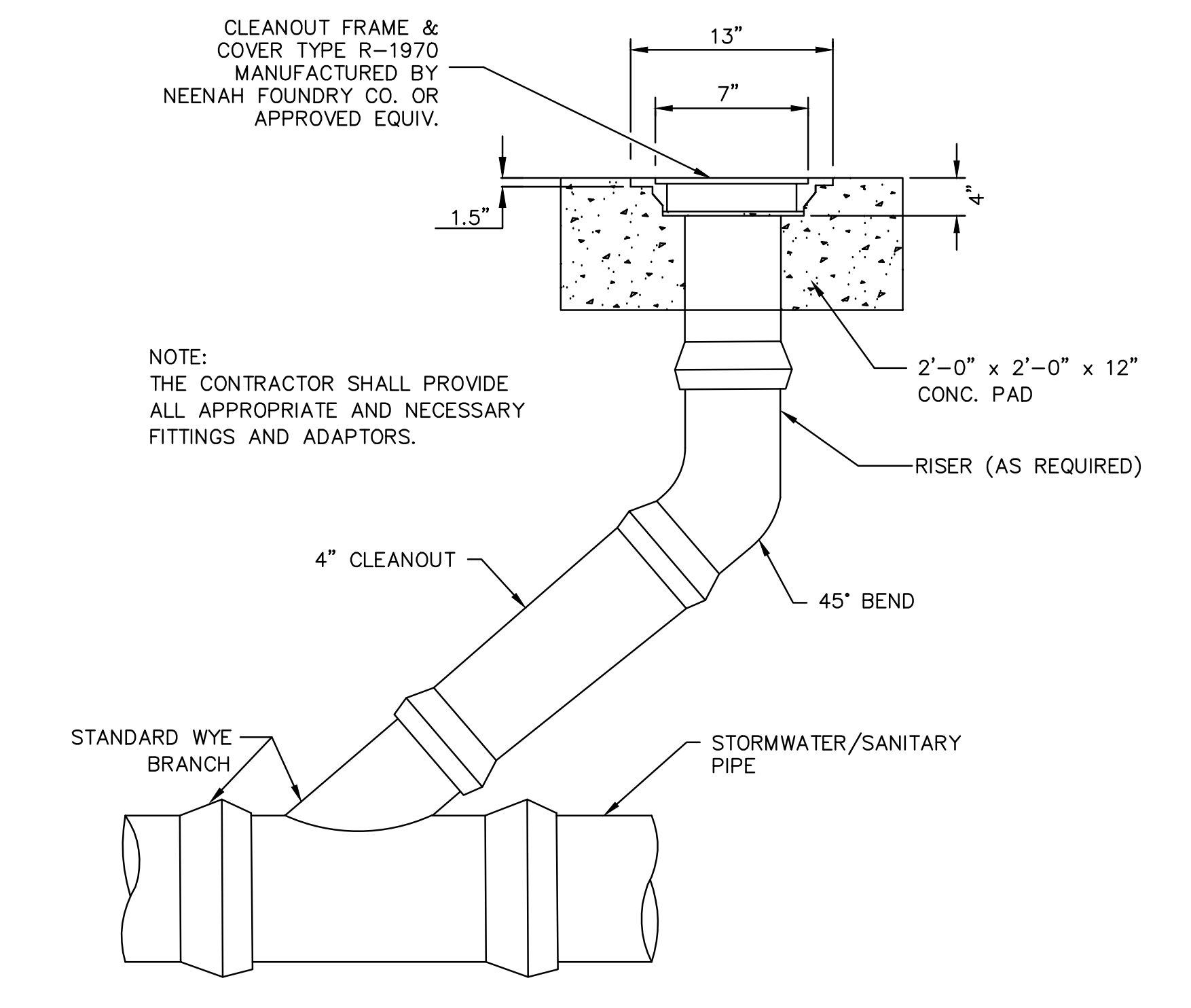
NTS


1" MIN.
14" – 16"
12" – 14"
COPOLYMER POLYPROPYLENE PLASTIC
#3 GRADE 60 REINFORCEMENT STEEL
SECTION A-A
6"
NOTE:
LADDER RUNGS FACING TRAFFIC 12" C TO C

REF: NEW JERSEY DEPARTMENT OF TRANSPORTATION DETAIL (CD–602–1.5)

8 COPOLYMER PLASTIC LADDER RUNG

NTS

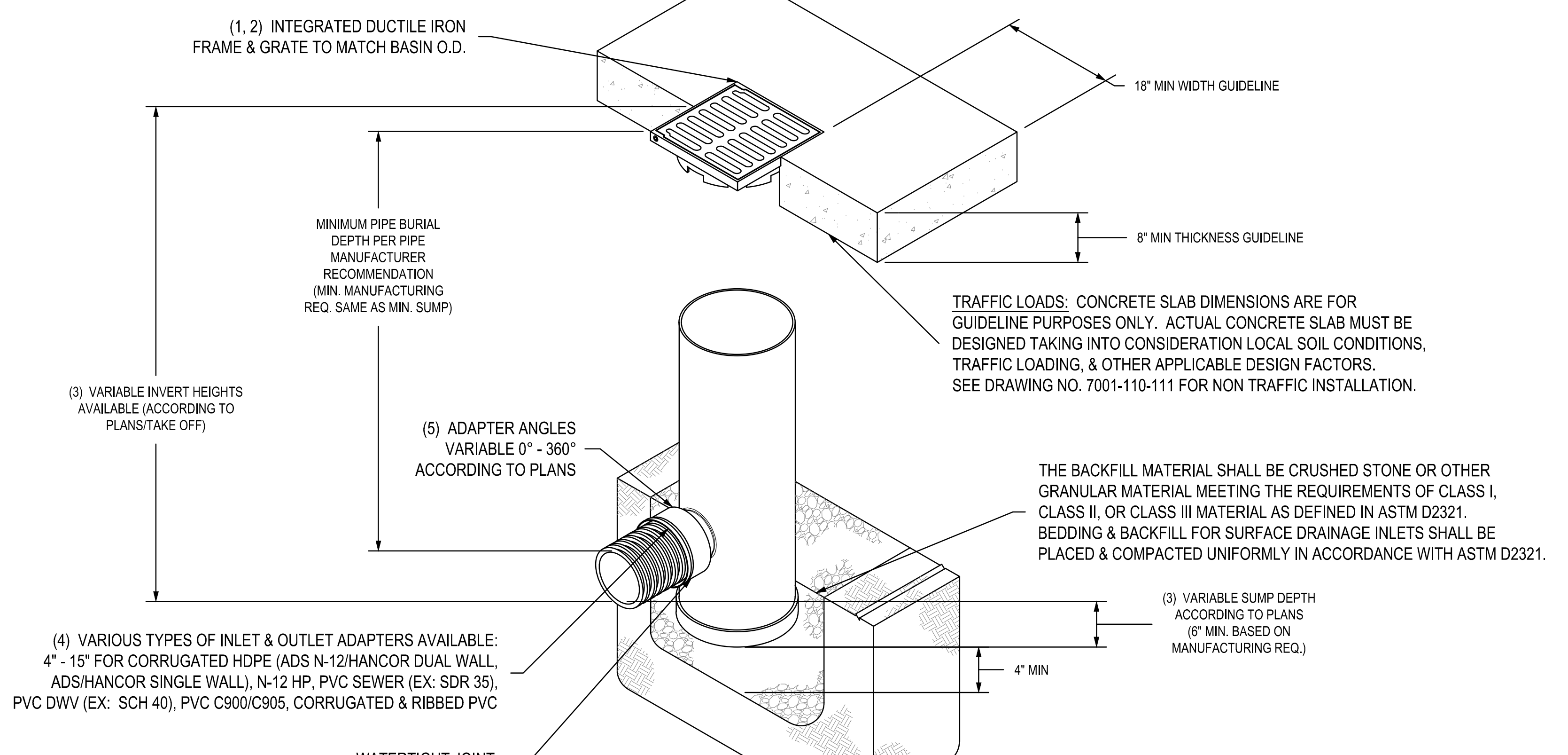

CLEANOUT FRAME & COVER TYPE R-1970 MANUFACTURED BY NEENAH FOUNDRY CO. OR APPROVED EQUIV.
13"
7"
1.5"
4"
NOTE:
THE CONTRACTOR SHALL PROVIDE ALL APPROPRIATE AND NECESSARY FITTINGS AND ADAPTORS.
2'-0" x 2'-0" x 12" CONC. PAD
RISER (AS REQUIRED)
4" CLEANOUT
45° BEND
STANDARD WYE BRANCH
STORMWATER/SANITARY PIPE

NOTES:

1. COVER TO BE MARKED 'SEWER' FOR SANITARY SEWER CLEANOUTS.
2. COVER TO BE MARKED 'STORM' FOR STORM SEWER CLEANOOUTS.
3. PROVIDE SHOP DRAWINGS REVIEW AND APPROVAL.

9 CLEANOUT

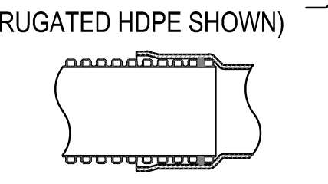
NTS


(1, 2) INTEGRATED DUCTILE IRON FRAME & GRATE TO MATCH BASIN O.D.
18" MIN WIDTH GUIDELINE
8" MIN THICKNESS GUIDELINE
MINIMUM PIPE BURIAL DEPTH PER PIPE MANUFACTURER RECOMMENDATION (MIN. MANUFACTURING REQ. SAME AS MIN. SUMP)
(3) VARIABLE INVERT HEIGHTS AVAILABLE (ACCORDING TO PLANS/TAKE OFF)
(5) ADAPTER ANGLES VARIABLE 0° - 360° ACCORDING TO PLANS
(4) VARIOUS TYPES OF INLET & OUTLET ADAPTERS AVAILABLE: 4" - 15" FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL, ADS/HANCOR SINGLE WALL), N-12 HP, PVC SEWER (EX: SDR 35), PVC DWV (EX: SCH 40), PVC C900/C905, CORRUGATED & RIBBED PVC
(3) VARIABLE SUMP DEPTH ACCORDING TO PLANS (6" MIN. BASED ON MANUFACTURING REQ.)
4" MIN

TRAFFIC LOADS: CONCRETE SLAB DIMENSIONS ARE FOR GUIDELINE PURPOSES ONLY. ACTUAL CONCRETE SLAB MUST BE DESIGNED TAKING INTO CONSIDERATION LOCAL SOIL CONDITIONS, TRAFFIC LOADING, & OTHER APPLICABLE DESIGN FACTORS. SEE DRAWING NO. 7001-110-111 FOR NON TRAFFIC INSTALLATION.

THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321.

WATERTIGHT JOINT (CORRUGATED HDPE SHOWN)



GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	MEETS H-10	1599CGP	7001-110-207
STANDARD	MEETS H-20	1599CGS	7001-110-208
SOLID COVER	MEETS H-20	1599CGC	7001-110-209
PEDESTRIAN BRONZE	N/A	1599CGPB	7001-110-210
DOME	N/A	1599CGD	7001-110-211
DROP IN GRATE	LIGHT DUTY	1501DI	7001-110-073

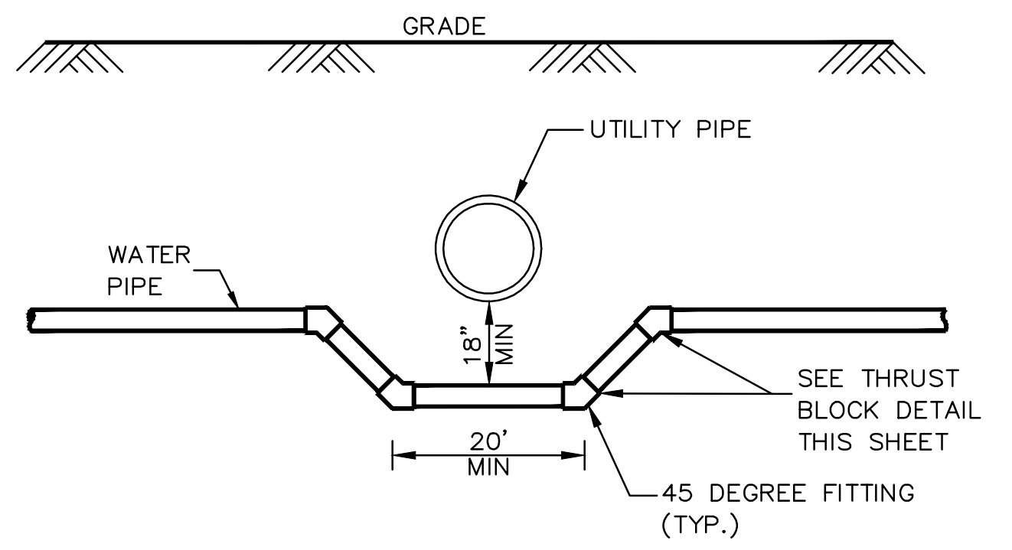
1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05, WITH THE EXCEPTION OF THE BRONZE GRATE.
2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER.
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

NOTES:

1. DETAIL OBTAINED FROM ADS WEBSITE.
2. PROVIDE SHOP DRAWINGS REVIEW AND APPROVAL.
3. REFER TO DRAINAGE STRUCTURE SCHEDULE ON DRAWING CG102 FOR SPECIFIED GRATE TYPES FOR EACH NYLOPLAST STRUCTURE.

10 NYLOPLAST DRAIN BASIN

NTS


GRADE
UTILITY PIPE
WATER PIPE
18" MIN
20" MIN
SEE THRUST BLOCK DETAIL THIS SHEET
45 DEGREE FITTING (TYP.)

NOTE:

1. ONE FULL LENGTH OF WATER PIPE SHOULD BE CENTERED UNDER THE CROSS PIPE SO THAT ALL JOINTS WILL BE AS FAR FROM THE CROSSING AS POSSIBLE.

11 DEPRESSED WATER LINE

NTS

Date	Description	No.

Revisions

Signature Date
LEONARD D. SAVINO
PROFESSIONAL ENGINEER NJ Lic. No. GE–39238

LANGAN
Langan Engineering and
Environmental Services, LLC

300 Kimball Drive
Parsippany, NJ 07054

T: 973.560.4900 F: 973.560.4901 www.langan.com
NJ Certificate of Authorization No. 24GA27996400

Project
DATA CENTER AT BELL WORKS
BLOCK NO. 11, LOT NO. 11 38.07
A PORTION OF BLOCK NO. 11, LOT NO. 38.05
HOLMDEL TOWNSHIP
MONMOUTH COUNTY NEW JERSEY

Drawing Title
CONSTRUCTION DETAILS III

Project No. 102054601
Date 7/24/2026
Drawn By GC
Checked By BMW

CS503

Project No. 102054601

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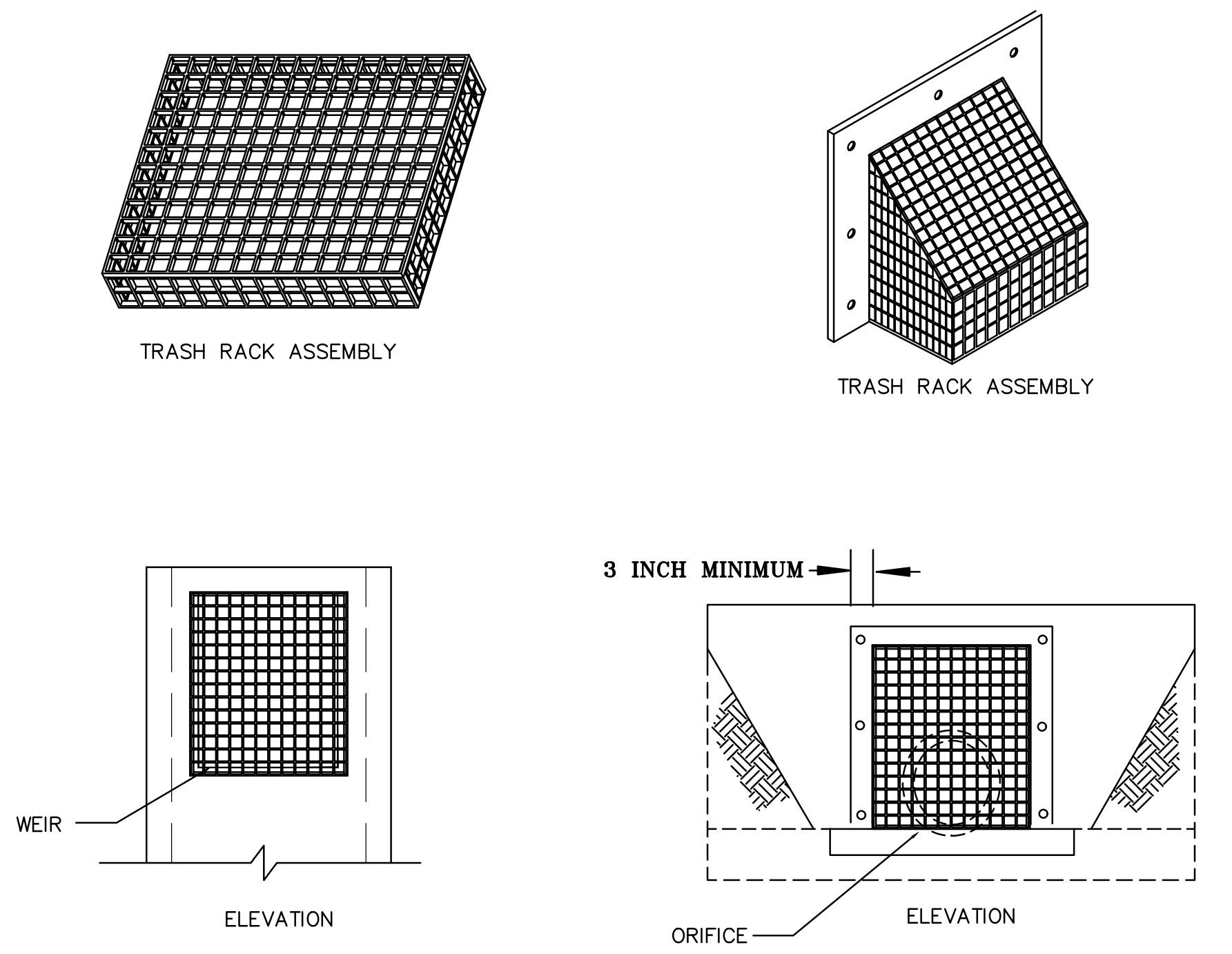

TRASH RACK ASSEMBLY
TRASH RACK ASSEMBLY
3 INCH MINIMUM
WEIR
ELEVATION
ORIFICE
ELEVATION

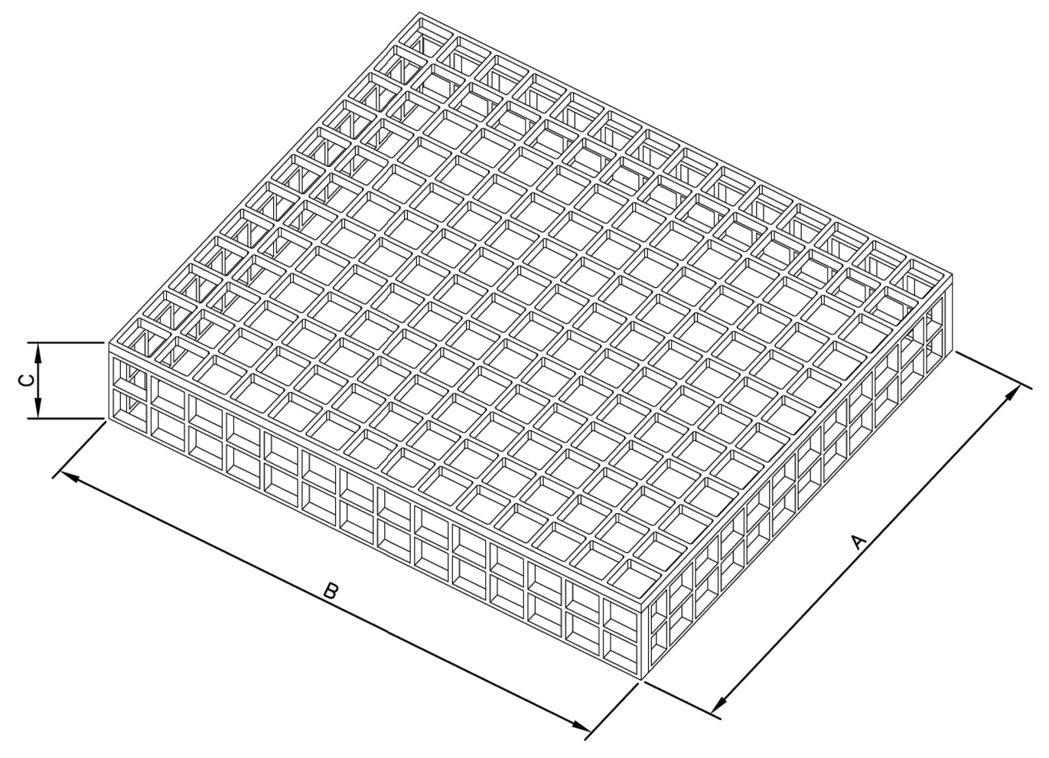
GENERAL NOTES:

1. TRASH RACKS SHALL BE INSTALLED AT THE INTAKE TO EACH OUTLET CONTROL STRUCTURE AND SHALL COMPLY WITH RSIS REQUIREMENTS.
2. TRASH RACKS SHALL BE ABLE TO WITHSTAND A PERPENDICULAR LIVE LOADING OF 300 PSF.
3. TRASH RACKS SHALL EXTEND A MINIMUM OF 6 INCHES OUTSIDE THE EXTENTS OF THE WEIR/ORIFICE AND SHALL NOT ADVERSELY AFFECT THE HYDRAULIC PERFORMANCE OF THE STRUCTURE.
4. ALL GRATES, PLATES AND ANGLES WILL BE ALUMINUM AND SHALL BE CORROSION RESISTANT.
5. ALL BOLTS WILL BE STAINLESS STEEL.
6. TRASH RACK SHALL HAVE PARALLEL BARS WITH ONE–INCH SPACING BETWEEN BARS TO THE ELEVATION OF THE WATER QUALITY DESIGN STORM. FOR ELEVATIONS HIGHER THAN THE WATER QUALITY DESIGN STORM, THE PARALLEL BARS AT THE OUTLET STRUCTURE SHALL BE SPACED NO GREATER THAN ONE–THIRD THE WIDTH OF THE DIAMETER OF THE ORIFICE OR ONE–THIRD THE WIDTH OF THE WEIR, WITH A MINIMUM SPACING BETWEEN BARS OF ONE INCH AND A MAXIMUM SPACING BETWEEN BARS OF SIX INCHES.

1 OUTLET CONTROL STRUCTURE TRASH RACK

NTS

FLAT ROOF RECTANGULAR RACKS/WEIRS
(STANDARD SIZES)
DIMENSIONS IN INCHES TO THE NEAREST 1/4"



HOST STRUCTURE INSIDE DIMENSIONS
______ LENGTH ______ WALL THICKNESS (REQUIRED)
______ WIDTH

AS DISTRIBUTED BY CONTECH CONSTRUCTION PRODUCTS NATIONALLY

WIDTH (A)	11 3/8	16 3/4	22 1/8	27 1/2	32 7/8	38 1/4	43 5/8	49	54 3/8	59 3/4	65 1/8	70 1/2	75 7/8	81 7/8	87 1/4
CODE	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16

LENGTH (B)	11 3/8	16 3/4	22 1/8	27 1/2	32 7/8	38 1/4	43 5/8	49	54 3/8	59 3/4	65 1/8	70 1/2	75 7/8	81 7/8	87 1/4
CODE	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16

HEIGHT (C)	7 1/2	12 7/8
CODE	01	02
	1 GRID HIGH	2 GRID HIGH

FLAT ROOF (FR) -------- -------- --------
WIDTH (A) LENGTH (B) HEIGHT (C)

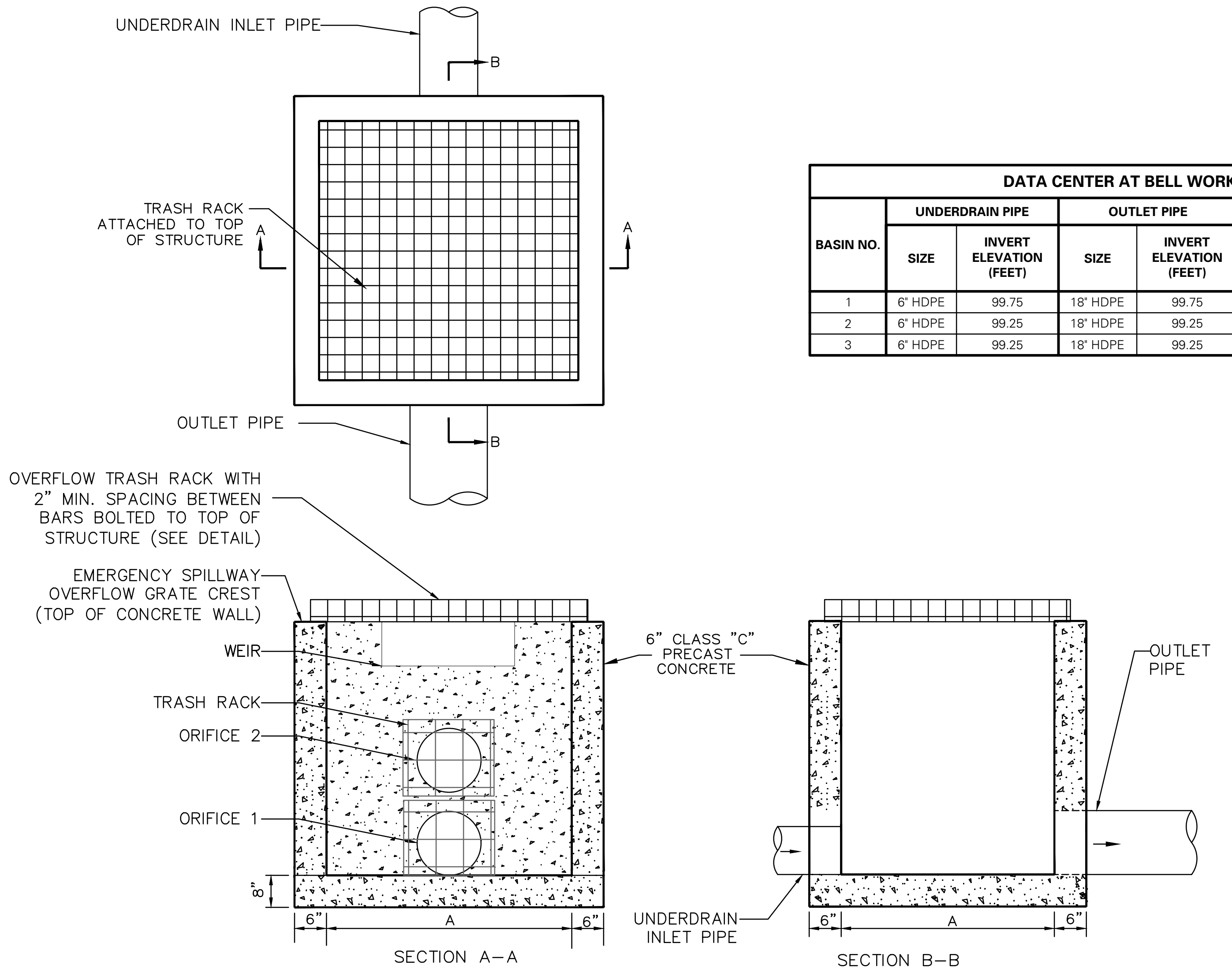
NOTES:

1. DETAIL OBTAINED FROM CONTECH WEBSITE. REFER TO CONTECH FOR INSTALLATION REQUIREMENTS.
2. PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL.
3. THE OVERFLOW GRATE SHALL BE CONSTRUCTED OF RIGID, DURABLE, AND CORROSION RESISTANT MATERIAL AND DESIGNED TO WITHSTAND A PERPENDICULAR LIVE LOADING OF 300 PSF.

	STRUCTURE DIMENSIONS	DIMENSION A	DIMENSION B	DIMENSION C
OCS–101	4'X4'	49"	49"	7 ½"
OCS–201	4'X4'	49"	49"	7 ½"
OCS–202	4'X4'	49"	49"	7 ½"

2 OVERFLOW TRASH RACK

NTS


UNDERDRAIN INLET PIPE
B
TRASH RACK ATTACHED TO TOP OF STRUCTURE
A
A
OUTLET PIPE
B
OVERFLOW TRASH RACK WITH 2" MIN. SPACING BETWEEN BARS BOLTED TO TOP OF STRUCTURE (SEE DETAIL)
EMERGENCY SPILLWAY OVERFLOW GRATE CREST (TOP OF CONCRETE WALL)
WEIR
TRASH RACK
ORIFICE 2
ORIFICE 1
8"
6"
A
6"
SECTION A–A
6" CLASS "C" PRECAST CONCRETE
UNDERDRAIN INLET PIPE
OUTLET PIPE
6"
A
6"
SECTION B–B

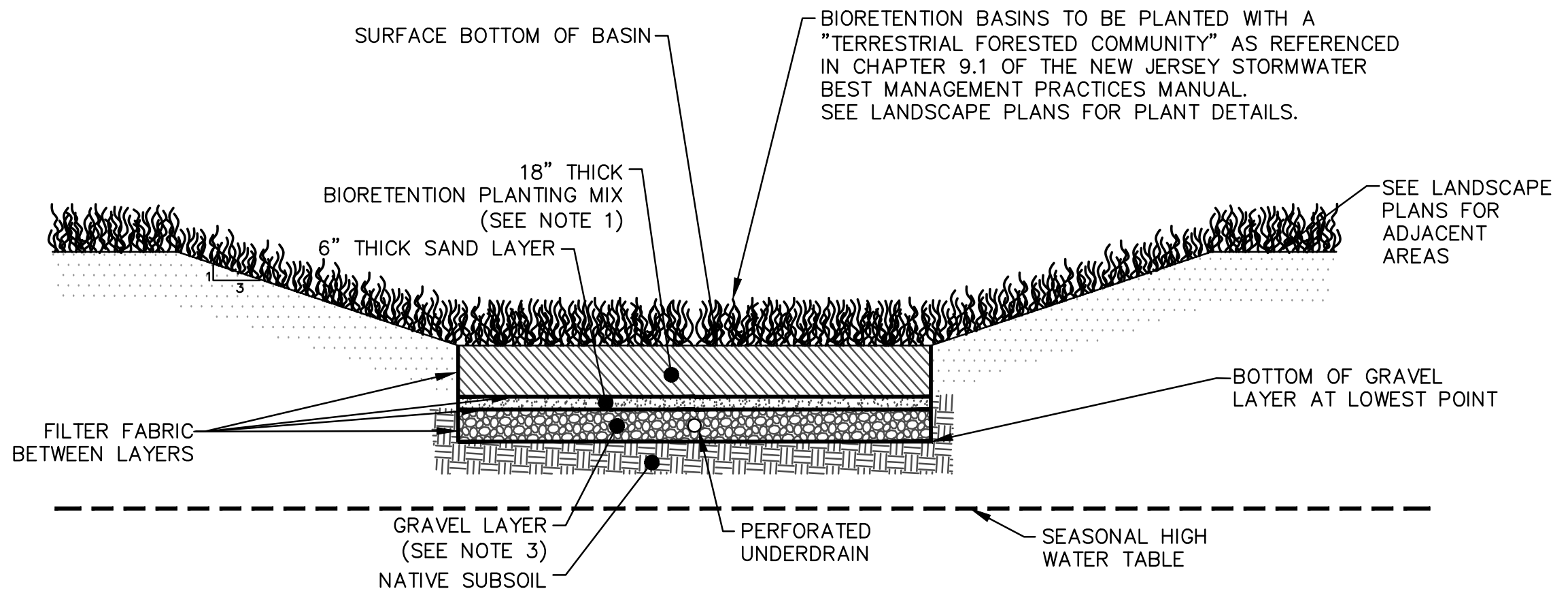
DATA CENTER AT BELL WORKS - BIORETENTION BASIN OUTLET CONTROL STRUCTURE SUMMARY TABLE										
BASIN NO.	UNDERDRAIN PIPE		OUTLET PIPE		ORIFICE 1		ORIFICE 2		OVERFLOW INLET	
	SIZE	INVERT ELEVATION (FEET)	SIZE	INVERT ELEVATION (FEET)	SIZE	INVERT ELEVATION (FEET)	SIZE	INVERT ELEVATION (FEET)	DIMENSION 'A' SIZE (FEET)	TOP OF STRUCTURE ELEVATION (FEET)
1	6" HDPE	99.75	18" HDPE	99.75	2.5"H X 27" W RECT.	103.80	2.5" H X 20" W RECT.	105.40	4	106.50
2	6" HDPE	99.25	18" HDPE	99.25	3.5" H X 32" W RECT.	103.20	4" H X 15" W RECT.	104.30	4	105.00
3	6" HDPE	99.25	18" HDPE	99.25	2.5" H X 18" W RECT.	103.00	2.5" H X 8" W RECT.	104.00	4	105.00

NOTES:

1. ALL ANCHOR BOLTS, NUTS AND WASHERS TO BE GALVANIZED.
2. PROVIDE PLASTIC LADDER RUNGS 12" O.C.. MAXIMUM DISTANCE BETWEEN BOTTOM OF STEP AND BOTTOM OF STRUCTURE SHALL NOT EXCEED 18 INCHES.
3. CONCRETE TO TEST 4,500 PSI MIN. @ 28 DAYS.
4. CONCRETE STRUCTURE REINFORCING AS PER ASTM A–185.
5. THE PRECASTER SHALL BE RESPONSIBLE FOR THE STRUCTURAL DESIGN OF THE STRUCTURE.
6. PROVIDE SHOP DRAWINGS FOR STRUCTURES AND APPURTENANCES FOR REVIEW AND APPROVAL.

3 BIORETENTION BASIN OUTLET CONTROL STRUCTURE

NTS


SURFACE BOTTOM OF BASIN
BIORETENTION BASINS TO BE PLANTED WITH A "TERRESTRIAL FORESTED COMMUNITY" AS REFERENCED IN CHAPTER 9.1 OF THE NEW JERSEY STORMWATER BEST MANAGEMENT PRACTICES MANUAL. SEE LANDSCAPE PLANS FOR PLANT DETAILS.
18" THICK BIORETENTION PLANTING MIX (SEE NOTE 1)
6" THICK SAND LAYER
SEE LANDSCAPE PLANS FOR ADJACENT AREAS
1
3
FILTER FABRIC BETWEEN LAYERS
BOTTOM OF GRAVEL LAYER AT LOWEST POINT
GRAVEL LAYER (SEE NOTE 3)
NATIVE SUBSOIL
PERFORATED UNDERDRAIN
SEASONAL HIGH WATER TABLE

BIORETENTION BASIN WITH UNDERDRAIN

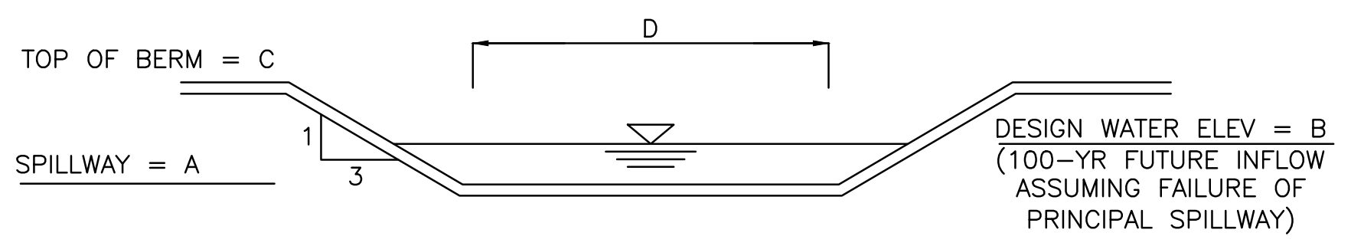
NOTES:

1. SEE PLANTING SOIL SPECIFICATIONS FOR BIORETENTION BASIN SOIL AND PREPARATION NOTES.
2. BIORETENTION BASIN (INCLUDING THE PLANT MIX, SAND, AND GRAVEL LAYER) TO BE CONSTRUCTED IN CONFORMANCE WITH NEW JERSEY STORMWATER BEST MANAGEMENT PRACTICES MANUAL SECTION 9.7: SMALL–SCALE BIORETENTION BASIN.
3. 3 INCHES OF GRAVEL LAYER SHALL BE PROVIDED ABOVE THE PERFORATED UNDERDRAIN AND A MINIMUM OF 3 INCHES OF GRAVEL LAYER SHALL BE BELOW THE PERFORATED UNDERDRAIN. THICKNESS OF GRAVEL LAYER WILL VARY THROUGHOUT BASIN AS A RESULT OF THE SLOPED UNDERDRAIN.
4. THE SOIL BED MATERIAL MUST CONSIST OF THE FOLLOWING MIX, BY WEIGHT: 85–95% SAND, WITH NO MORE THAN 25% OF THE SAND AS FINE OR VERY FINE SANDS; NO MORE THAN 15% SILT AND CLAY WITH 2% TO 5% CLAY CONTENT. THE ENTIRE MIX MUST THEN BE AMENDED WITH 3 TO 7% ORGANICS, BY WEIGHT.
5. THE TESTED PERMEABILITY RATE OF THE SOIL MEDIA SHALL BE AT LEAST 1 IN/HR.
6. THE 6" THICK SAND LAYER SHALL CONSIST OF MEDIUM–AGGREGATE CONCRETE SAND (AASHTO M–6/ASTM C–33) AND HAVE A PERMEABILITY RATE OF AT LEAST TWICE THE DESIGN PERMEABILITY RATE OF THE SOIL MEDIA.
7. THE GRAVEL LAYER SHALL CONSIST OF 0.5 TO 1.5 INCH CLEAN, BROKEN STONE OR PEA GRAVEL (AASHTO M–43).
8. PROVIDE SHOP DRAWINGS FOR ALL BASIN COMPONENTS (SOIL MEDIA, GRAVEL, SAND, PLANTINGS, UNDERDRAIN, ETC) FOR REVIEW AND APPROVAL PRIOR TO IMPORT TO THE SITE.

DATA CENTER AT BELL WORKS - BASIN SUMMARY TABLE												
BASIN NO.	BASIN SURFACE ELEVATION (FEET)	WATER QUALITY WSE (FEET)	2-YR CURRENT WSE[1] (FEET)	2-YR FUTURE WSE[1] (FEET)	10-YR CURRENT WSE[1] (FEET)	10-YR FUTURE WSE[1] (FEET)	100-YR CURRENT WSE[1] (FEET)	100-YR FUTURE WSE[1] (FEET)	SPILLWAY FULL-FLOW WSE[2] (FEET)	BOTTOM ELEVATION OF GRAVEL LAYER (FEET)	SEASONAL HIGH WATER TABLE ELEVATION[3] (FEET)	SEPARATION FROM BOTTOM OF BMP TO SEASONAL HIGH WATER TABLE (FEET)
1	103	103.79	104.23	104.41	104.77	105.06	105.86	106.45	106.35	99.5	96.0	3.50
2	102.5	103.19	103.53	103.66	103.87	104.06	104.56	104.97	105.30	99.0	98.0	1.00
3	102.5	102.99	103.34	103.49	103.78	103.99	104.53	104.97	105.28	99.0	98.0	1.00

4 BIORETENTION BASIN

NTS

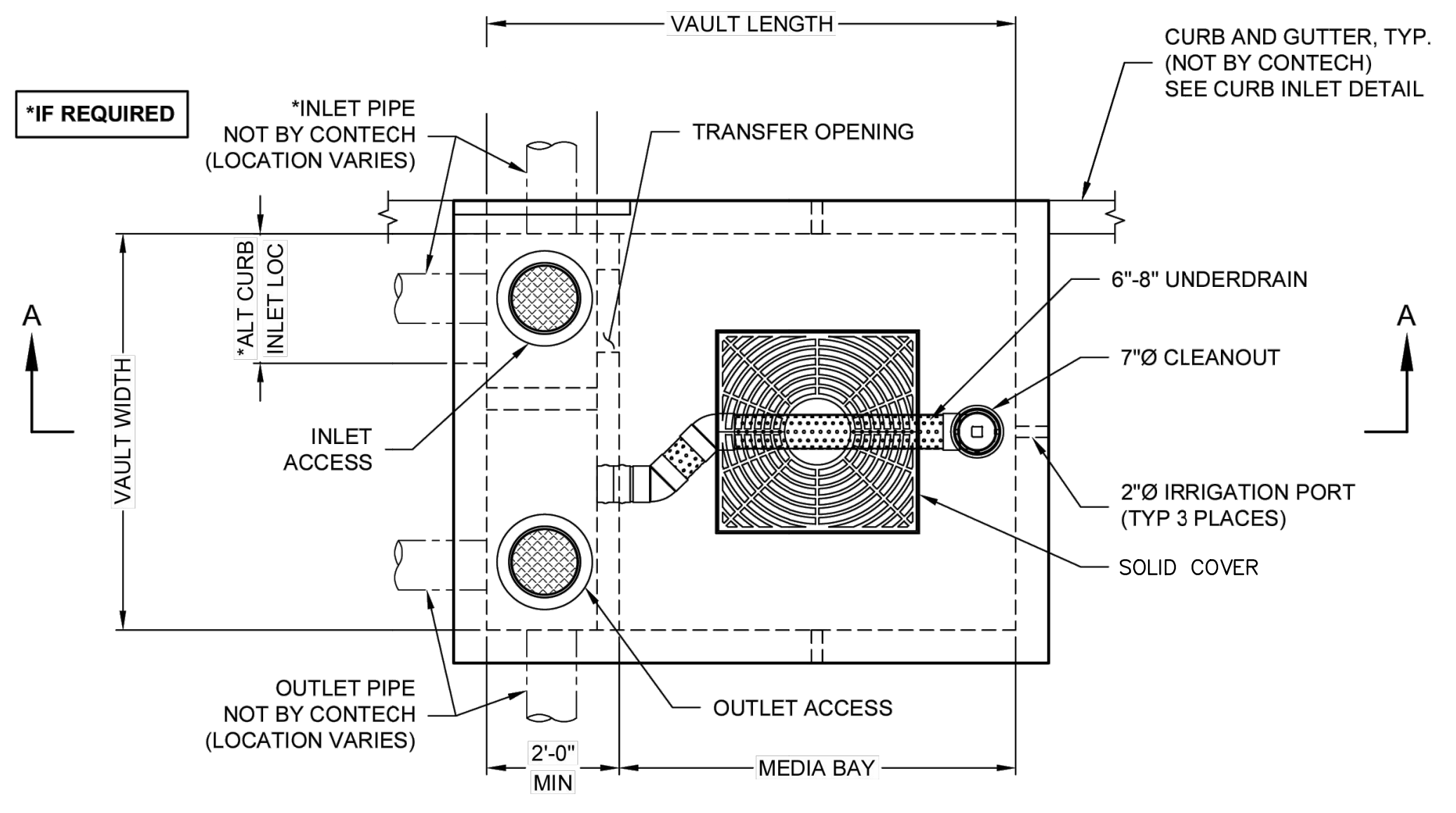

TOP OF BERM = C
D
SPILLWAY = A
1
3
DESIGN WATER ELEV = B
(100–YR FUTURE INFLOW ASSUMING FAILURE OF PRINCIPAL SPILLWAY)

DATA CENTER AT BELL WORKS - EMERGENCY SPILLWAY SUMMARY TABLE				
BASIN NO.	ELEVATION 'A' (FEET)	ELEVATION 'B' (FEET)	ELEVATION 'C' (FEET)	WIDTH 'D' (FEET)
1	106.50	106.85	107.50	29
2	105.00	105.30	106.00	33
3	105.00	105.28	106.00	40

5 EMERGENCY SPILLWAY

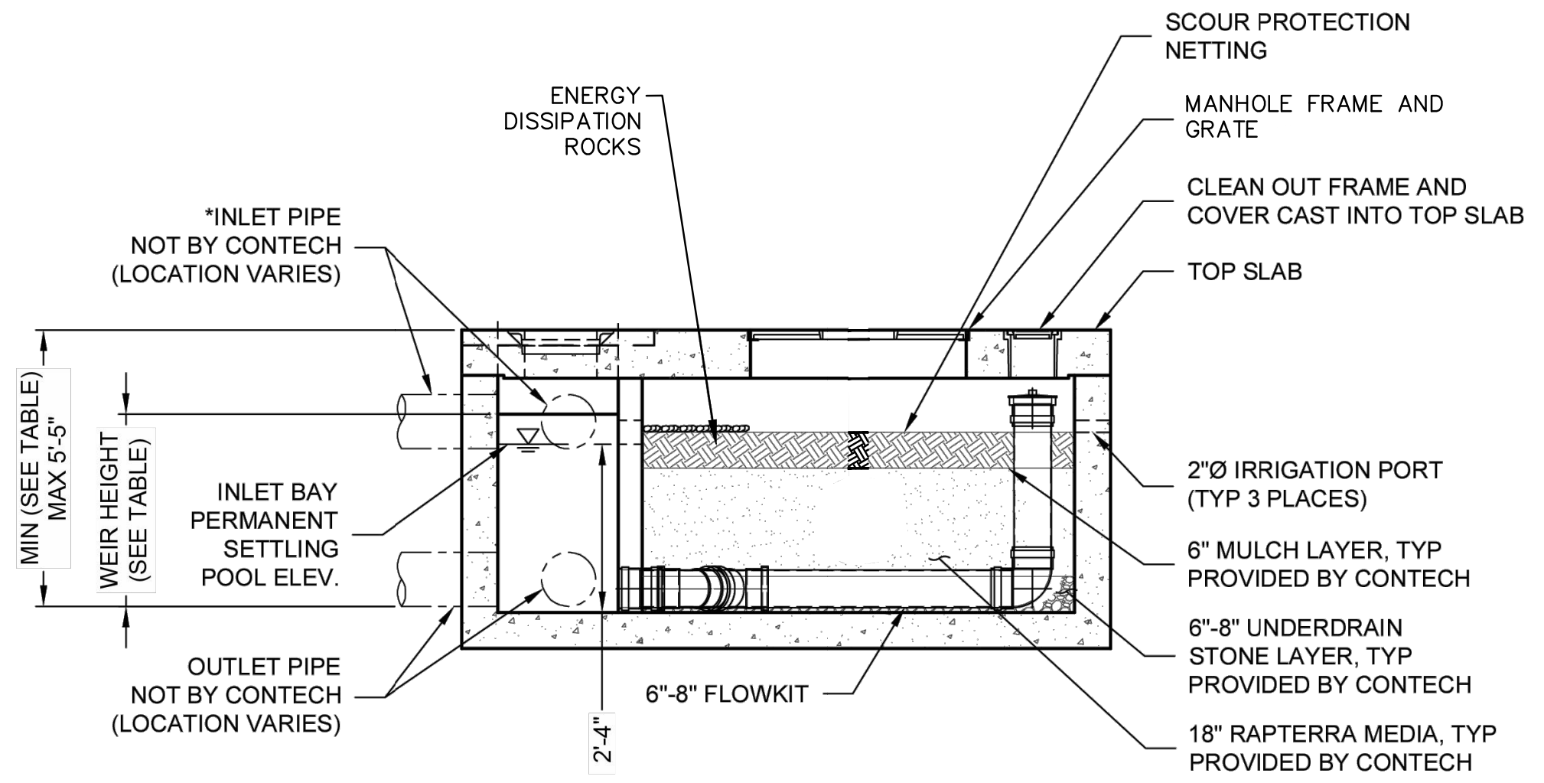
NTS

***IF REQUIRED**


VAULT LENGTH
CURB AND GUTTER, TYP. (NOT BY CONTECH) SEE CURB INLET DETAIL
*INLET PIPE NOT BY CONTECH (LOCATION VARIES)
TRANSFER OPENING
*ALT CURB INLET LOC
A
A
VAULT WIDTH
6"-8" UNDERDRAIN
7"Ø CLEANOUT
INLET ACCESS
2"Ø IRRIGATION PORT (TYP 3 PLACES)
SOLID COVER
OUTLET PIPE NOT BY CONTECH (LOCATION VARIES)
OUTLET ACCESS
2'-0" MIN
MEDIA BAY

PLAN VIEW

RTPD CONFIGURATION (OPTIONS: THROAT INLET "-T", PIPE INLET "-P", PIPE AND THROAT INLET "-PT")											
MEDIA BAY SIZE (VAULT SIZE)	EFFECTIVE FILTRATION TREATMENT AREA (SF)	MTFR (cfs)	DESIGNATION	UNDERDRAIN SIZE	MIN RIM TO OUTLET	*WEIR LENGTH / MAX CURB OPENING	WEIR HEIGHT (ABOVE OUTLET)	TRANSFER OPENING SIZE	INLET / OUTLET ACCESS DIA.	TREE GRATE QTY. & SIZE	
4x4 (6x4)	15.79	0.344	RTPD0404	6" SDR 35	4'-1"	1'-8"	35"	4" x 15"	12" / 12"	(1) 3' x 3'	
4x6 (8x4)	23.79	0.518	RTPD0406	6" SDR 35	4'-1"	1'-8"	35"	4" x 15"	12" / 12"	(1) 3' x 3'	
6x4 (6x6)	23.79	0.518	RTPD0604	6" SDR 35	4'-1"	1'-8"	35"	4" x 36"	12" / 12"	(1) 3' x 3'	
4.5x5.83 (7.83 x 4.5)	26.02	0.567	RTPD045078	6" SDR 35	4'-1"	1'-8"	35"	4" x 20"	12" / 12"	(1) 3' x 3'	
6x6 (8x6)	35.79	0.780	RTPD0606	6" SDR 35	4'-1"	1'-8"	35"	4" x 36"	12" / 12"	(1) 3' x 3'	
6x8 (10x6)	47.79	1.041	RTPD0608	8" SDR 35	4'-3"	1'-8"	37"	4" x 36"	12" / 12"	(1) 4' x 4'	WQ–104
6x10 (12x6)	59.62	1.299	RTPD0610	8" SDR 35	4'-3"	1'-8"	37"	4" x 36"	12" / 12"	(1) 4' x 4'	WQ–103
7x10 (13x7)	69.62	1.517	RTPD0710	8" SDR 35	4'-3"	2'-6"	37"	4" x 42"	24" / 24"	(1) 4' x 4'	
8x10.5 (14x8)	83.62	1.822	RTPD08105	8" SDR 35	4'-4"	3'-0"	38"	5" x 48"	24" / 24"	(1) 4' x 4'	WQ–102
8x12.5 (16x8)	99.62	2.171	RTPD08125	8" SDR 35	4'-4"	3'-0"	38"	5" x 48"	24" / 24"	(2) 4' x 4'	WQ–101
8x14 (18x8)	111.23	2.424	RTPD0814	8" SDR 35	4'-5"	3'-6"	39"	6" x 48"	24" / 24"	(2) 4' x 4'	
8x16 (20x8)	127.23	2.772	RTPD0816	8" SDR 35	4'-6"	3'-6"	40"	7" x 48"	24" / 24"	(2) 4' x 4'	
8x18 (22x8)	143.23	3.121	RTPD0818	8" SDR 35	4'-6"	3'-6"	40"	7" x 48"	24" / 24"	(2) 4' x 4'	
*SITE SPECIFIC ANALYSIS IS REQUIRED TO DETERMINE CURB INLET AND WEIR OVERFLOW CAPACITIES.											


SCOUR PROTECTION NETTING
ENERGY DISSIPATION ROCKS
MANHOLE FRAME AND GRATE
CLEAN OUT FRAME AND COVER CAST INTO TOP SLAB
*INLET PIPE NOT BY CONTECH (LOCATION VARIES)
TOP SLAB
MIN (SEE TABLE) MAX 5'-5"
WEIR HEIGHT (SEE TABLE)
INLET BAY PERMANENT SETTLING POOL ELEV.
2"Ø IRRIGATION PORT (TYP 3 PLACES)
6" MULCH LAYER, TYP PROVIDED BY CONTECH
6"-8" UNDERDRAIN STONE LAYER, TYP PROVIDED BY CONTECH
OUTLET PIPE NOT BY CONTECH (LOCATION VARIES)
6"-8" FLOWKIT
2'-4"
18" RAPTERRA MEDIA, TYP PROVIDED BY CONTECH

SECTION A-A

***IF REQUIRED**

NOTES:

1. DETAIL OBTAINED FROM CONTECH WEBSITE. REFER TO CONTECH FOR INSTALLATION REQUIREMENTS.
2. PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL.

6 WATER QUALITY CONTROL STRUCTURE

NTS

Date	Description	No.

Revisions

Signature Date
LEONARD D. SAVINO
PROFESSIONAL ENGINEER NJ Lic. No. GE–39238

LANGAN
Langan Engineering and
Environmental Services, LLC

300 Kimball Drive
Parsippany, NJ 07054

T: 973.560.4900 F: 973.560.4901 www.langan.com
NJ Certificate of Authorization No. 24GA27996400

Project
DATA CENTER AT BELL WORKS
BLOCK NO. 11, LOT NO. 11 38.07
A PORTION OF BLOCK NO. 11, LOT NO. 38.05
HOLMDEL TOWNSHIP
MONMOUTH COUNTY NEW JERSEY

Drawing Title
CONSTRUCTION DETAILS IV

Project No. 102054601
Date 7/24/2026
Drawn By GC
Checked By BMW

CS504

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APPENDIX A

Existing/Allowable Stormwater Discharge Calculations

CN and TC Sheets

Existing Curve Number (CN) Calculations

		HSG A		HSG B					
Drainage Area	Area (ac)	Open Space (ac)	Wooded Area (ac)	Open Space (ac)	Gravel (ac)	Wooded Area (ac)	Weighted Pervious CN	Total Pervious Area (ac)	Impervious Area (ac)
		CN = 39	CN = 30	CN = 61	CN = 85	CN = 55			CN = 98
Watershed-1 (Disturbed)	2.78	0.00	0.02	1.22	0.00	0.03	60	1.27	1.51
Watershed-1 (Undisturbed)	3.61	0.05	1.21	0.94	0.00	1.34	48	3.54	0.07
Watershed-2 (Disturbed)	4.28	0.00	0.00	1.10	0.00	0.00	61	1.10	3.18
Watershed-2 (Undisturbed)	10.14	0.06	1.41	2.58	0.49	4.27	54	8.81	1.33

Project:	Data Center at Bell Works	**By:**	BMW	**Date:**	7/23/2026
Location:	Homldel, Monmouth County, NJ	**Checked By:**	LDS	**Date Checked:**	7/23/2026

Circle One: [✓ Present] Developed — **Existing Watershed 1 - Impervious (Current) (Disturbed)**

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1		
1.	Surface Description (NEH table 15-1)		Smooth Surfaces		
2.	Manning's Roughness Coeff., n (NEH table 15-1)		0.011		
3.	Flow Length, L (total L < 100 ft)	ft	100		
4.	Two-year 24-hr rainfall, P_2	in	3.35		
5.	Land Slope, s	ft/ft	0.014		
6.	Compute T_t $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.023	+	+

Sheet Flow Sub-Total **0.023 hours**

Shallow Concentrated Flow

		Segment ID	2	3	4
7.	Surface Description		Pavement	Short-Grass Pasture	Woodlands
8.	Flow Length, L	ft	104	88	90
9.	Watercourse Slope, s	ft/ft	0.026	0.026	0.084
10.	Average Velocity, V (NEH table 15-3)	ft/s	3.30	1.13	1.45
11.	Compute T_t $T_t = \frac{L}{3600\ V}$	hr	0.009	+ 0.022	+ 0.017

Shallow Conc. Flow Sub-Total **0.048 hours**

Channel Flow

		Segment ID			
12.	Flow Length, L	ft			
13.	Cross Sectional flow area, a	ft^2			
14.	Wetted Perimeter, P_w	ft			
15.	Hydraulic Radius, r $r = a / P_w$	ft			
16.	Channel Slope, s	ft/ft			
17.	Manning's Roughness Coeff., n				
18.	Velocity, V $V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s			
19.	Compute T_t $T_t = \frac{L}{3600\ V}$	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.070 hours**
Total Tc (minutes) =	**4 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Homldel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: [✓ Present] Developed Existing Watershed 1 - Pervious (Current) (Disturbed)

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

			Segment ID	1		2		
1.	Surface Description (NEH table 15-1)			Woods Light Underbrush		Short Grass Prairie		
2.	Manning's Roughness Coeff., n (NEH table 15-1)			0.40		0.15		
3.	Flow Length, L (total L < 100 ft)		ft	74		26		
4.	Two-year 24-hr rainfall, P_2		in	3.35		3.35		
5.	Land Slope, s		ft/ft	0.047		0.068		
6.	Compute T_t	$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.195	+	0.033	+	

Sheet Flow Sub-Total **0.229 hours**

Shallow Concentrated Flow

			Segment ID	3		4		
7.	Surface Description			Short-Grass Pasture		Woodlands		
8.	Flow Length, L		ft	162		130		
9.	Watercourse Slope, s		ft/ft	0.008		0.067		
10.	Average Velocity, V (NEH table 15-3)		ft/s	0.61		1.30		
11.	Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	0.074	+	0.028	+	

Shallow Conc. Flow Sub-Total **0.101 hours**

Channel Flow

			Segment ID					
12.	Flow Length, L		ft					
13.	Cross Sectional flow area, a		ft^2					
14.	Wetted Perimeter, P_w		ft					
15.	Hydraulic Radius, r	$r = a / P_w$	ft					
16.	Channel Slope, s		ft/ft					
17.	Manning's Roughness Coeff., n							
18.	Velocity, V	$V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s					
19.	Compute T_t	$T_t = \frac{L}{3600\,V}$	hr		+		+	

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours)	=	**0.330 hours**
Total Tc (minutes)	=	**20 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Homldel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: [✓ Present] Developed **Existing Watershed 1 - Impervious (Current) (Undisturbed)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1	2	
1.	Surface Description (NEH table 15-1)		Smooth Surfaces	Short Grass Prairie	
2.	Manning's Roughness Coeff., n (NEH table 15-1)		0.011	0.15	
3.	Flow Length, L (total L < 100 ft)	ft	74	26	
4.	Two-year 24-hr rainfall, P_2	in	3.35	3.35	
5.	Land Slope, s	ft/ft	0.004	0.158	
6.	Compute T_t $\quad T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.028 +	0.024 +	

Sheet Flow Sub-Total **0.052 hours**

Shallow Concentrated Flow

		Segment ID	3	4	
7.	Surface Description		Short-Grass Pasture	Woodlands	
8.	Flow Length, L	ft	23	99	
9.	Watercourse Slope, s	ft/ft	0.008	0.074	
10.	Average Velocity, V (NEH table 15-3)	ft/s	0.62	1.37	
11.	Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	0.010 +	0.020 +	

Shallow Conc. Flow Sub-Total **0.030 hours**

Channel Flow

		Segment ID			
12.	Flow Length, L	ft			
13.	Cross Sectional flow area, a	ft^2			
14.	Wetted Perimeter, P_w	ft			
15.	Hydraulic Radius, r $\quad r = a / P_w$	ft			
16.	Channel Slope, s	ft/ft			
17.	Manning's Roughness Coeff., n				
18.	Velocity, V $\quad V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s			
19.	Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	+	+	

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) = **0.083 hours**
Total Tc (minutes) = **5 minutes**

Project: Data Center at Bell Works

By: BMW

Date: 7/23/2026

Location: Homldel, Monmouth County, NJ

Checked By: LDS

Date Checked: 7/23/2026

Circle One: [✓ Present] Developed

Existing Watershed 1 - Pervious (Current) (Undisturbed)

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

	Segment ID		1		
1.	Surface Description (NEH table 15-1)		Woods Light Underbrush		
2.	Manning's Roughness Coeff., n (NEH table 15-1)		0.40		
3.	Flow Length, L (total L < 100 ft)	ft	100		
4.	Two-year 24-hr rainfall, P_2	in	3.35		
5.	Land Slope, s	ft/ft	0.174		
6.	Compute T_t	hr	0.147	+	+

$$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$$

Sheet Flow Sub-Total **0.147 hours**

Shallow Concentrated Flow

	Segment ID		2	3	4
7.	Surface Description		Woodlands	Woodlands	Short-Grass Pasture
8.	Flow Length, L	ft	21	21	25
9.	Watercourse Slope, s	ft/ft	0.002	0.014	0.019
10.	Average Velocity, V (NEH table 15-3)	ft/s	0.22	0.59	0.96
11.	Compute T_t	hr	0.027	+ 0.010	+ 0.007

$$T_t = \frac{L}{3600\,V}$$

Shallow Conc. Flow Sub-Total **0.044 hours**

Shallow Concentrated Flow

	Segment ID		4		
12.	Surface Description		Woodlands		
13.	Flow Length, L	ft	83		
14.	Watercourse Slope, s	ft/ft	0.006		
15.	Average Velocity, V (NEH table 15-3)	ft/s	0.22		
16.	Compute T_t	hr	0.105	+	+

$$T_t = \frac{L}{3600\,V}$$

Shallow Conc. Flow Sub-Total **0.105 hours**

Channel Flow

	Segment ID		5	6	
12.	Flow Length, L	ft	235	143	
13.	Cross Sectional flow area, a	ft^2	1.23	1.77	
14.	Wetted Perimeter, P_w	ft	3.93	4.71	
15.	Hydraulic Radius, r	ft	0.31	0.38	
16.	Channel Slope, s	ft/ft			
17.	Manning's Roughness Coeff., n		0.013	0.023	
18.	Velocity, V	ft/s			
19.	Compute T_t	hr		+	+

$r = a / P_w$

$V = (1.49\, r^{2/3} s^{1/2}) / n$

$$T_t = \frac{L}{3600\,V}$$

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	0.296 hours
Total Tc (minutes) =	18 minutes

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Homldel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: [✓ Present] Developed Existing Watershed 1 - Impervious (Future) (Disturbed)

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1		
1.	Surface Description (NEH table 15-1)		Smooth Surfaces		
2.	Manning's Roughness Coeff., n (NEH table 15-1)		0.011		
3.	Flow Length, L (total L < 100 ft)	ft	100		
4.	Two-year 24-hr rainfall, P_2	in	3.99		
5.	Land Slope, s	ft/ft	0.014		
6.	Compute T_t $T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.021	+	+

Sheet Flow Sub-Total **0.021 hours**

Shallow Concentrated Flow

		Segment ID	2	3	4
7.	Surface Description		Pavement	Short-Grass Pasture	Woodlands
8.	Flow Length, L	ft	104	88	90
9.	Watercourse Slope, s	ft/ft	0.026	0.026	0.084
10.	Average Velocity, V (NEH table 15-3)	ft/s	3.30	1.13	1.45
11.	Compute T_t $T_t = \frac{L}{3600\ V}$	hr	0.009	+ 0.022	+ 0.017

Shallow Conc. Flow Sub-Total **0.048 hours**

Channel Flow

		Segment ID			
12.	Flow Length, L	ft			
13.	Cross Sectional flow area, a	ft^2			
14.	Wetted Perimeter, P_w	ft			
15.	Hydraulic Radius, r $r = a / P_w$	ft			
16.	Channel Slope, s	ft/ft			
17.	Manning's Roughness Coeff., n				
18.	Velocity, V $V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s			
19.	Compute T_t $T_t = \frac{L}{3600\ V}$	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.068 hours**
Total Tc (minutes) =	**4 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Homldel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: [✓ Present] Developed **Existing Watershed 1 - Pervious (Future) (Disturbed)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**	**2**	
1.	Surface Description (NEH table 15-1)		**Woods Light Underbrush**	**Short Grass Prairie**	
2.	Manning's Roughness Coeff., n (NEH table 15-1)		**0.40**	**0.15**	
3.	Flow Length, L (total L < 100 ft)	ft	**74**	**26**	
4.	Two-year 24-hr rainfall, P_2	in	**3.99**	**3.99**	
5.	Land Slope, s	ft/ft	**0.047**	**0.068**	
6.	Compute T_t $\quad T_t = \dfrac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	**0.179** +	**0.031** +	

Sheet Flow Sub-Total **0.210 hours**

Shallow Concentrated Flow

		Segment ID	**3**	**4**	
7.	Surface Description		**Short-Grass Pasture**	**Woodlands**	
8.	Flow Length, L	ft	**162**	**130**	
9.	Watercourse Slope, s	ft/ft	**0.008**	**0.067**	
10.	Average Velocity, V (NEH table 15-3)	ft/s	**0.61**	**1.30**	
11.	Compute T_t $\quad T_t = \dfrac{L}{3600\,V}$	hr	**0.074** +	**0.028** +	

Shallow Conc. Flow Sub-Total **0.101 hours**

Channel Flow

		Segment ID			
12.	Flow Length, L	ft			
13.	Cross Sectional flow area, a	ft^2			
14.	Wetted Perimeter, P_w	ft			
15.	Hydraulic Radius, r $\quad r = a / P_w$	ft			
16.	Channel Slope, s	ft/ft			
17.	Manning's Roughness Coeff., n				
18.	Velocity, V $\quad V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s			
19.	Compute T_t $\quad T_t = \dfrac{L}{3600\,V}$	hr	+	+	

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.311 hours**
Total Tc (minutes) =	**19 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Homldel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: [✓ Present] Developed **Existing Watershed 1 - Impervious (Future) (Undisturbed)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**	**2**	
1.	Surface Description (NEH table 15-1)		**Smooth Surfaces**	**Short Grass Prairie**	
2.	Manning's Roughness Coeff., n (NEH table 15-1)		**0.011**	**0.15**	
3.	Flow Length, L (total L < 100 ft)	ft	**74**	**26**	
4.	Two-year 24-hr rainfall, P_2	in	**3.99**	**3.99**	
5.	Land Slope, s	ft/ft	**0.004**	**0.158**	
6.	Compute T_t $\quad T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	**0.026** +	**0.022** +	

Sheet Flow Sub-Total **0.048 hours**

Shallow Concentrated Flow

		Segment ID	**3**	**4**	
7.	Surface Description		**Short-Grass Pasture**	**Woodlands**	
8.	Flow Length, L	ft	**23**	**99**	
9.	Watercourse Slope, s	ft/ft	**0.008**	**0.074**	
10.	Average Velocity, V (NEH table 15-3)	ft/s	**0.62**	**1.37**	
11.	Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	**0.010** +	**0.020** +	

Shallow Conc. Flow Sub-Total **0.030 hours**

Channel Flow

		Segment ID			
12.	Flow Length, L	ft			
13.	Cross Sectional flow area, a	ft^2			
14.	Wetted Perimeter, P_w	ft			
15.	Hydraulic Radius, r $\quad r = a / P_w$	ft			
16.	Channel Slope, s	ft/ft			
17.	Manning's Roughness Coeff., n				
18.	Velocity, V $\quad V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s			
19.	Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	+	+	

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.078 hours**
Total Tc (minutes) =	**5 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Homldel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: [✓ Present] Developed Existing Watershed 1 - Pervious (Future) (Undisturbed)
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

			Segment ID	1		
1.	Surface Description (NEH table 15-1)			Woods Light Underbrush		
2.	Manning's Roughness Coeff., n (NEH table 15-1)			0.40		
3.	Flow Length, L (total L < 100 ft)		ft	100		
4.	Two-year 24-hr rainfall, P_2		in	3.99		
5.	Land Slope, s		ft/ft	0.174		
6.	Compute T_t	$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.135	+	+

Sheet Flow Sub-Total **0.135 hours**

Shallow Concentrated Flow

			Segment ID	2	3	4
7.	Surface Description			Woodlands	Woodlands	Short-Grass Pasture
8.	Flow Length, L		ft	21	21	25
9.	Watercourse Slope, s		ft/ft	0.002	0.014	0.019
10.	Average Velocity, V (NEH table 15-3)		ft/s	0.22	0.59	0.96
11.	Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	0.027	+ 0.010	+ 0.007

Shallow Conc. Flow Sub-Total **0.044 hours**

Shallow Concentrated Flow

			Segment ID	4		
12.	Surface Description			Woodlands		
13.	Flow Length, L		ft	83		
14.	Watercourse Slope, s		ft/ft	0.006		
15.	Average Velocity, V (NEH table 15-3)		ft/s	0.22		
16.	Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	0.105	+	+

Shallow Conc. Flow Sub-Total **0.105 hours**

Channel Flow

			Segment ID	5	6	
12.	Flow Length, L		ft	235	143	
13.	Cross Sectional flow area, a		ft^2	1.23	1.77	
14.	Wetted Perimeter, P_w		ft	3.93	4.71	
15.	Hydraulic Radius, r	$r = a / P_w$	ft	0.31	0.38	
16.	Channel Slope, s		ft/ft			
17.	Manning's Roughness Coeff., n			0.013	0.023	
18.	Velocity, V	$V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s			
19.	Compute T_t	$T_t = \frac{L}{3600\,V}$	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	0.283 hours
Total Tc (minutes) =	17 minutes

Project:	Data Center at Bell Works	**By:**	BMW	**Date:**	7/23/2026
Location:	Homldel, Monmouth County, NJ	**Checked By:**	LDS	**Date Checked:**	7/23/2026

Circle One: [✓ Present] Developed — **Existing Watershed 2 - Impervious (Current) (Disturbed)**

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**		
1.	Surface Description (NEH table 15-1)		**Smooth Surfaces**		
2.	Manning's Roughness Coeff., n (NEH table 15-1)		**0.011**		
3.	Flow Length, L (total L < 100 ft)	ft	**100**		
4.	Two-year 24-hr rainfall, P_2	in	**3.35**		
5.	Land Slope, s	ft/ft	**0.014**		
6.	Compute T_t $\quad T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	**0.023**	+	+

Sheet Flow Sub-Total **0.023 hours**

Shallow Concentrated Flow

		Segment ID	**2**	**3**	**4**
7.	Surface Description		**Pavement**	**Short-Grass Pasture**	**Woodlands**
8.	Flow Length, L	ft	**138**	**64**	**286**
9.	Watercourse Slope, s	ft/ft	**0.007**	**0.091**	**0.035**
10.	Average Velocity, V (NEH table 15-3)	ft/s	**1.73**	**2.10**	**0.95**
11.	Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	**0.022**	+ **0.008**	+ **0.084**

Shallow Conc. Flow Sub-Total **0.115 hours**

Channel Flow

		Segment ID			
12.	Flow Length, L	ft			
13.	Cross Sectional flow area, a	ft^2			
14.	Wetted Perimeter, P_w	ft			
15.	Hydraulic Radius, r $\quad r = a / P_w$	ft			
16.	Channel Slope, s	ft/ft			
17.	Manning's Roughness Coeff., n				
18.	Velocity, V $\quad V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s			
19.	Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.137 hours**
Total Tc (minutes) =	**8 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Homldel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: [✓ Present] Developed **Existing Watershed 2 - Pervious (Current) (Disturbed)**

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**		
1.	Surface Description (NEH table 15-1)		**Short Grass Prairie**		
2.	Manning's Roughness Coeff., n (NEH table 15-1)		**0.15**		
3.	Flow Length, L (total L < 100 ft)	ft	**100**		
4.	Two-year 24-hr rainfall, P_2	in	**3.35**		
5.	Land Slope, s	ft/ft	**0.146**		
6.	Compute T_t $T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	**0.072**	+	+

Sheet Flow Sub-Total **0.072 hours**

Shallow Concentrated Flow

		Segment ID	**2**	**3**	**4**
7.	Surface Description		**Short-Grass Pasture**	**Pavement**	**Short-Grass Pasture**
8.	Flow Length, L	ft	**7**	**295**	**64**
9.	Watercourse Slope, s	ft/ft	**0.226**	**0.004**	**0.090**
10.	Average Velocity, V (NEH table 15-3)	ft/s	**3.31**	**1.33**	**2.09**
11.	Compute T_t $T_t = \frac{L}{3600\,V}$	hr	**0.001**	+ **0.062**	+ **0.008**

Shallow Conc. Flow Sub-Total **0.071 hours**

Shallow Concentrated Flow

		Segment ID	**5**		
11.	Surface Description		**Woodlands**		
12.	Flow Length, L	ft	**286**		
13.	Watercourse Slope, s	ft/ft	**0.035**		
14.	Average Velocity, V (NEH table 15-3)	ft/s	**2.39**		
15.	Compute T_t $T_t = \frac{L}{3600\,V}$	hr	**0.033**	+	+

Shallow Conc. Flow Sub-Total **0.033 hours**

Channel Flow

		Segment ID			
12.	Flow Length, L	ft			
13.	Cross Sectional flow area, a	ft^2			
14.	Wetted Perimeter, P_w	ft			
15.	Hydraulic Radius, r $r = a / P_w$	ft			
16.	Channel Slope, s	ft/ft			
17.	Manning's Roughness Coeff., n				
18.	Velocity, V $V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s			
19.	Compute T_t $T_t = \frac{L}{3600\,V}$	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.176 hours**
Total Tc (minutes) =	**11 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Homldel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: [✓ Present] Developed Existing Watershed 2 - Impervious (Current) (Undisturbed)
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

			Segment ID	1		
1.	Surface Description (NEH table 15-1)			Smooth Surfaces		
2.	Manning's Roughness Coeff., n (NEH table 15-1)			0.011		
3.	Flow Length, L (total L < 100 ft)		ft	100		
4.	Two-year 24-hr rainfall, P_2		in	3.35		
5.	Land Slope, s		ft/ft	0.006		
6.	Compute T_t	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.031	+	+

Sheet Flow Sub-Total **0.031 hours**

Shallow Concentrated Flow

			Segment ID	2	3	4
7.	Surface Description			Pavement	Short-Grass Pasture	Woodlands
8.	Flow Length, L		ft	98	156	319
9.	Watercourse Slope, s		ft/ft	0.004	0.034	0.035
10.	Average Velocity, V (NEH table 15-3)		ft/s	1.30	1.29	0.94
11.	Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	0.021	+ 0.034	+ 0.094

Shallow Conc. Flow Sub-Total **0.149 hours**

Channel Flow

			Segment ID			
12.	Flow Length, L		ft			
13.	Cross Sectional flow area, a		ft^2			
14.	Wetted Perimeter, P_w		ft			
15.	Hydraulic Radius, r	$r = a / P_w$	ft			
16.	Channel Slope, s		ft/ft			
17.	Manning's Roughness Coeff., n					
18.	Velocity, V	$V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s			
19.	Compute T_t	$T_t = \frac{L}{3600\ V}$	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	0.180 hours
Total Tc (minutes) =	11 minutes

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Homldel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: [✓ Present] Developed Existing Watershed 2 - Pervious (Current) (Undisturbed)
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1		
1. Surface Description (NEH table 15-1)			Woods Light Underbrush		
2. Manning's Roughness Coeff., n (NEH table 15-1)			0.40		
3. Flow Length, L (total L < 100 ft)		ft	100		
4. Two-year 24-hr rainfall, P_2		in	3.35		
5. Land Slope, s		ft/ft	0.007		
6. Compute T_t	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.535	+	+

Sheet Flow Sub-Total **0.535 hours**

Shallow Concentrated Flow

		Segment ID	2		
7. Surface Description			Woodlands		
8. Flow Length, L		ft	221		
9. Watercourse Slope, s		ft/ft	0.047		
10. Average Velocity, V (NEH table 15-3)		ft/s	1.09		
11. Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	0.056	+	+

Shallow Conc. Flow Sub-Total **0.056 hours**

Channel Flow

		Segment ID			
12. Flow Length, L		ft			
13. Cross Sectional flow area, a		ft^2			
14. Wetted Perimeter, P_w		ft			
15. Hydraulic Radius, r	$r = a / P_w$	ft			
16. Channel Slope, s		ft/ft			
17. Manning's Roughness Coeff., n					
18. Velocity, V	$V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s			
19. Compute T_t	$T_t = \frac{L}{3600\ V}$	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.592 hours**
Total Tc (minutes) =	**35 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Homldel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: [✓ Present] Developed **Existing Watershed 2 - Impervious (Future) (Disturbed)**

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1		
1. Surface Description (NEH table 15-1)			Smooth Surfaces		
2. Manning's Roughness Coeff., n (NEH table 15-1)			0.011		
3. Flow Length, L (total L < 100 ft)		ft	100		
4. Two-year 24-hr rainfall, P_2		in	3.99		
5. Land Slope, s		ft/ft	0.014		
6. Compute T_t	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.021	+	+

Sheet Flow Sub-Total **0.021 hours**

Shallow Concentrated Flow

		Segment ID	2	3	4
7. Surface Description			Pavement	Short-Grass Pasture	Woodlands
8. Flow Length, L		ft	138	64	286
9. Watercourse Slope, s		ft/ft	0.007	0.091	0.035
10. Average Velocity, V (NEH table 15-3)		ft/s	1.73	2.10	0.95
11. Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	0.022	+ 0.008	+ 0.084

Shallow Conc. Flow Sub-Total **0.115 hours**

Channel Flow

		Segment ID			
12. Flow Length, L		ft			
13. Cross Sectional flow area, a		ft^2			
14. Wetted Perimeter, P_w		ft			
15. Hydraulic Radius, r	$r = a / P_w$	ft			
16. Channel Slope, s		ft/ft			
17. Manning's Roughness Coeff., n					
18. Velocity, V	$V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s			
19. Compute T_t	$T_t = \frac{L}{3600\ V}$	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.136 hours**
Total Tc (minutes) =	**8 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Homldel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: [✓ Present] Developed **Existing Watershed 2 - Pervious (Future) (Disturbed)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)			Segment ID	**1**		
1.	Surface Description (NEH table 15-1)			**Short Grass Prairie**		
2.	Manning's Roughness Coeff., n (NEH table 15-1)			**0.15**		
3.	Flow Length, L (total L < 100 ft)		ft	**100**		
4.	Two-year 24-hr rainfall, P_2		in	**3.35**		
5.	Land Slope, s		ft/ft	**0.146**		
6.	Compute T_t	$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}s^{0.4}}$	hr	**0.072**	+	+
					Sheet Flow Sub-Total	**0.072 hours**

Shallow Concentrated Flow			Segment ID	**2**	**3**	**4**
7.	Surface Description			**Short-Grass Pasture**	**Pavement**	**Short-Grass Pasture**
8.	Flow Length, L		ft	**7**	**295**	**64**
9.	Watercourse Slope, s		ft/ft	**0.226**	**0.004**	**0.090**
10.	Average Velocity, V (NEH table 15-3)		ft/s	**3.31**	**1.33**	**2.09**
11.	Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	**0.001**	+ **0.062**	+ **0.008**
					Shallow Conc. Flow Sub-Total	**0.071 hours**

Shallow Concentrated Flow			Segment ID	**5**		
11.	Surface Description			**Woodlands**		
12.	Flow Length, L		ft	**286**		
13.	Watercourse Slope, s		ft/ft	**0.035**		
14.	Average Velocity, V (NEH table 15-3)		ft/s	**2.39**		
15.	Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	**0.033**	+	+
					Shallow Conc. Flow Sub-Total	**0.033 hours**

Channel Flow			Segment ID			
12.	Flow Length, L		ft			
13.	Cross Sectional flow area, a		ft^2			
14.	Wetted Perimeter, P_w		ft			
15.	Hydraulic Radius, r	$r = a / P_w$	ft			
16.	Channel Slope, s		ft/ft			
17.	Manning's Roughness Coeff., n					
18.	Velocity, V	$V = (1.49\, r^{2/3}\, s^{1/2}) / n$	ft/s			
19.	Compute T_t	$T_t = \frac{L}{3600\,V}$	hr		+	+
					Channel Flow Sub-Total	**0.000 hours**

Watershed or subarea T_c or T_t	Total Tc (hours) =	**0.176 hours**
(Add Sub-Total T_t from prior steps)	Total Tc (minutes) =	**11 minutes**

Project: Data Center at Bell Works
By: BMW
Date: 7/23/2026
Location: Homldel, Monmouth County, NJ
Checked By: LDS
Date Checked: 7/23/2026
Circle One: [✓ Present] Developed
Existing Watershed 2 - Impervious (Future) (Undisturbed)
Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**		
1.	Surface Description (NEH table 15-1)		**Smooth Surfaces**		
2.	Manning's Roughness Coeff., n (NEH table 15-1)		**0.011**		
3.	Flow Length, L (total L < 100 ft)	ft	**100**		
4.	Two-year 24-hr rainfall, P_2	in	**3.99**		
5.	Land Slope, s	ft/ft	**0.006**		
6.	Compute T_t	hr	**0.029**	+	+

$$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$$

Sheet Flow Sub-Total **0.029 hours**

Shallow Concentrated Flow

		Segment ID	**2**	**3**	**4**
7.	Surface Description		**Pavement**	**Short-Grass Pasture**	**Woodlands**
8.	Flow Length, L	ft	**98**	**156**	**319**
9.	Watercourse Slope, s	ft/ft	**0.004**	**0.034**	**0.035**
10.	Average Velocity, V (NEH table 15-3)	ft/s	**1.30**	**1.29**	**0.94**
11.	Compute T_t	hr	**0.021**	+ **0.034**	+ **0.094**

$$T_t = \frac{L}{3600\,V}$$

Shallow Conc. Flow Sub-Total **0.149 hours**

Channel Flow

		Segment ID			
12.	Flow Length, L	ft			
13.	Cross Sectional flow area, a	ft^2			
14.	Wetted Perimeter, P_w	ft			
15.	Hydraulic Radius, r $\quad r = a / P_w$	ft			
16.	Channel Slope, s	ft/ft			
17.	Manning's Roughness Coeff., n				
18.	Velocity, V $\quad V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s			
19.	Compute T_t	hr		+	+

$$T_t = \frac{L}{3600\,V}$$

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) = **0.178 hours**
Total Tc (minutes) = **11 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Homldel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: [✓ Present] Developed **Existing Watershed 2 - Pervious (Future) (Undisturbed)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**		
1.	Surface Description (NEH table 15-1)		**Woods Light Underbrush**		
2.	Manning's Roughness Coeff., n (NEH table 15-1)		**0.40**		
3.	Flow Length, L (total L < 100 ft)	ft	**100**		
4.	Two-year 24-hr rainfall, P_2	in	**3.99**		
5.	Land Slope, s	ft/ft	**0.007**		
6.	Compute T_t $$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$$	hr	**0.491**	+	+

Sheet Flow Sub-Total **0.491 hours**

Shallow Concentrated Flow

		Segment ID	**2**		
7.	Surface Description		**Woodlands**		
8.	Flow Length, L	ft	**221**		
9.	Watercourse Slope, s	ft/ft	**0.047**		
10.	Average Velocity, V (NEH table 15-3)	ft/s	**1.09**		
11.	Compute T_t $$T_t = \frac{L}{3600\ V}$$	hr	**0.056**	+	+

Shallow Conc. Flow Sub-Total **0.056 hours**

Channel Flow

		Segment ID			
12.	Flow Length, L	ft			
13.	Cross Sectional flow area, a	ft^2			
14.	Wetted Perimeter, P_w	ft			
15.	Hydraulic Radius, r $r = a / P_w$	ft			
16.	Channel Slope, s	ft/ft			
17.	Manning's Roughness Coeff., n				
18.	Velocity, V $V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s			
19.	Compute T_t $$T_t = \frac{L}{3600\ V}$$	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.547 hours**
Total Tc (minutes) =	**33 minutes**

EXISTING RUNOFF HYDROGRAPHS "CURRENT" 2-, 10-, AND 100-YEAR STORMS

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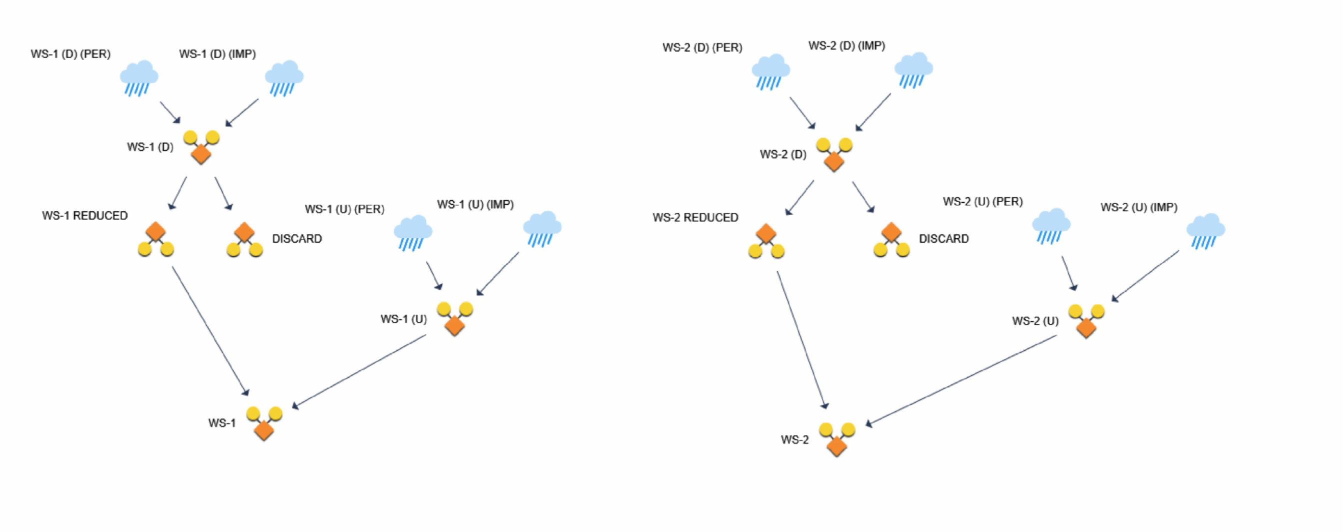
Basin Model

Hydrology Studio v 3.0.0.44

File: 102054601 - Current Existing.hys
07-23-2026



WS-1 (D) (PER)
WS-1 (D) (IMP)
WS-1 (D)
WS-1 REDUCED
DISCARD
WS-1 (U) (PER)
WS-1 (U) (IMP)
WS-1 (U)
WS-1
WS-2 (D) (PER)
WS-2 (D) (IMP)
WS-2 (D)
WS-2 REDUCED
DISCARD
WS-2 (U) (PER)
WS-2 (U) (IMP)
WS-2 (U)
WS-2

Hydrograph by Return Period

Hydrology Studio v 3.0.0.44

File: 102054601 - Current Existing.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	WS-1 (D) (PER)		0.227						
2	NRCS Runoff	WS-1 (D) (IMP)		4.644						
3	Junction	WS-1 (D)		4.711						
4	Diversion1	WS-1 REDUCED		2.356						
5	Diversion2	DISCARD		2.356						
6	NRCS Runoff	WS-1 (U) (PER)		0.057						
7	NRCS Runoff	WS-1 (U) (IMP)		0.191						
8	Junction	WS-1 (U)		0.191						
9	NRCS Runoff	WS-2 (D) (PER)		0.294						
10	NRCS Runoff	WS-2 (D) (IMP)		8.083						
11	Junction	WS-2 (D)		8.313						
12	Diversion1	WS-2 REDUCED		4.157						
13	Diversion2	DISCARD		4.157						
14	NRCS Runoff	WS-2 (U) (PER)		0.499						
15	NRCS Runoff	WS-2 (U) (IMP)		2.918						
16	Junction	WS-2 (U)		2.955						
17	Junction	WS-1		2.545						
18	Junction	WS-2		7.033						

Hydrograph 2-yr Summary

Hydrology Studio v 3.0.0.44

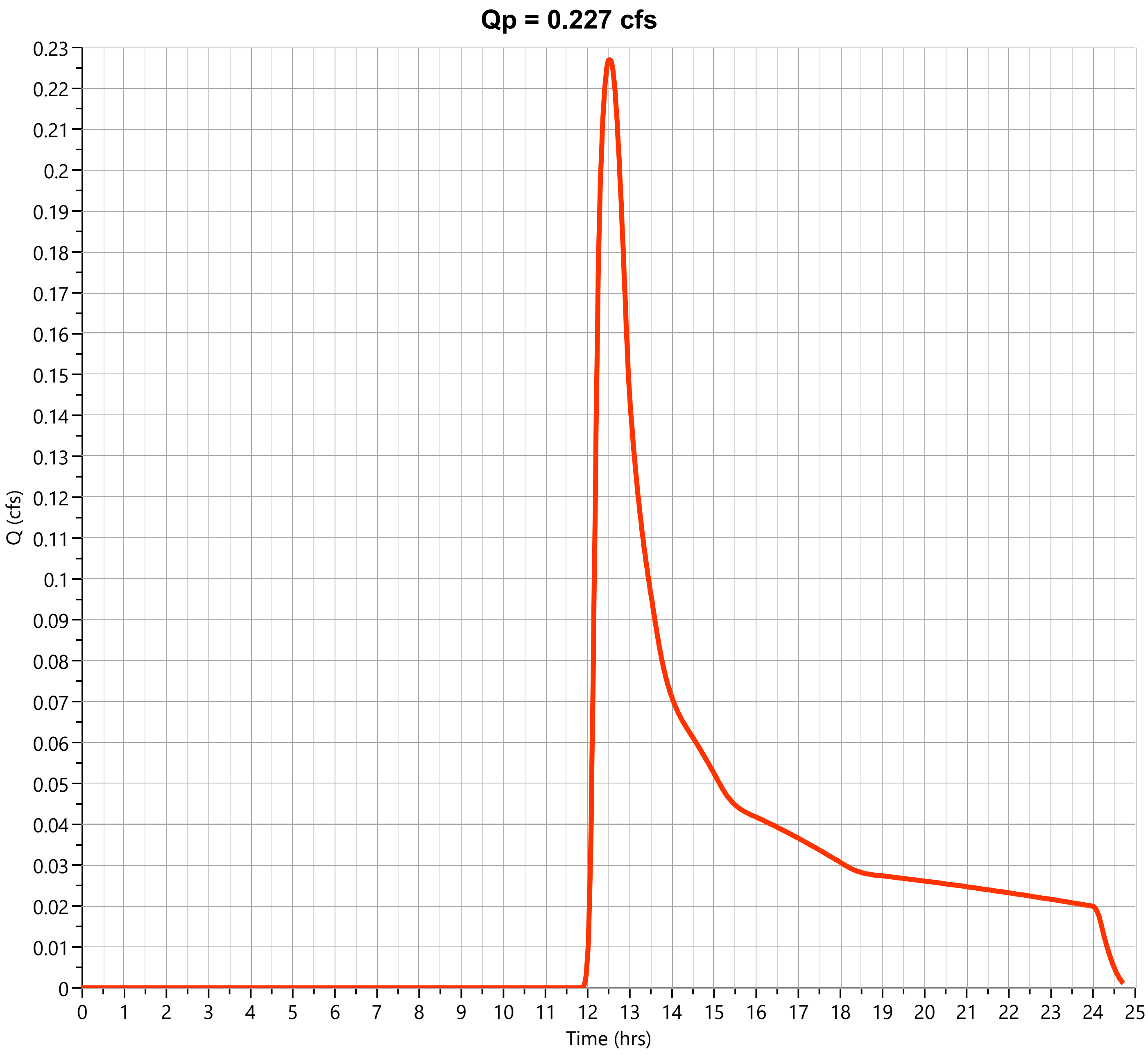
File: 102054601 - Current Existing.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	WS-1 (D) (PER)	0.227	12.52	2,178	----		
2	NRCS Runoff	WS-1 (D) (IMP)	4.644	12.12	17,544	----		
3	Junction	WS-1 (D)	4.711	12.12	19,721	1, 2		
4	Diversion1	WS-1 REDUCED	2.356	12.12	9,861	3		
5	Diversion2	DISCARD	2.356	12.12	9,861	3		
6	NRCS Runoff	WS-1 (U) (PER)	0.057	13.40	1,498	----		
7	NRCS Runoff	WS-1 (U) (IMP)	0.191	12.13	784	----		
8	Junction	WS-1 (U)	0.191	12.13	2,282	6, 7		
9	NRCS Runoff	WS-2 (D) (PER)	0.294	12.28	2,036	----		
10	NRCS Runoff	WS-2 (D) (IMP)	8.083	12.15	36,419	----		
11	Junction	WS-2 (D)	8.313	12.15	38,455	9, 10		
12	Diversion1	WS-2 REDUCED	4.157	12.15	19,227	11		
13	Diversion2	DISCARD	4.157	12.15	19,227	11		
14	NRCS Runoff	WS-2 (U) (PER)	0.499	13.20	8,487	----		
15	NRCS Runoff	WS-2 (U) (IMP)	2.918	12.18	15,137	----		
16	Junction	WS-2 (U)	2.955	12.18	23,624	14, 15		
17	Junction	WS-1	2.545	12.12	12,143	4, 8		
18	Junction	WS-2	7.033	12.17	42,851	12, 16		

WS-1 (D) (PER)

Hyd. No. 1

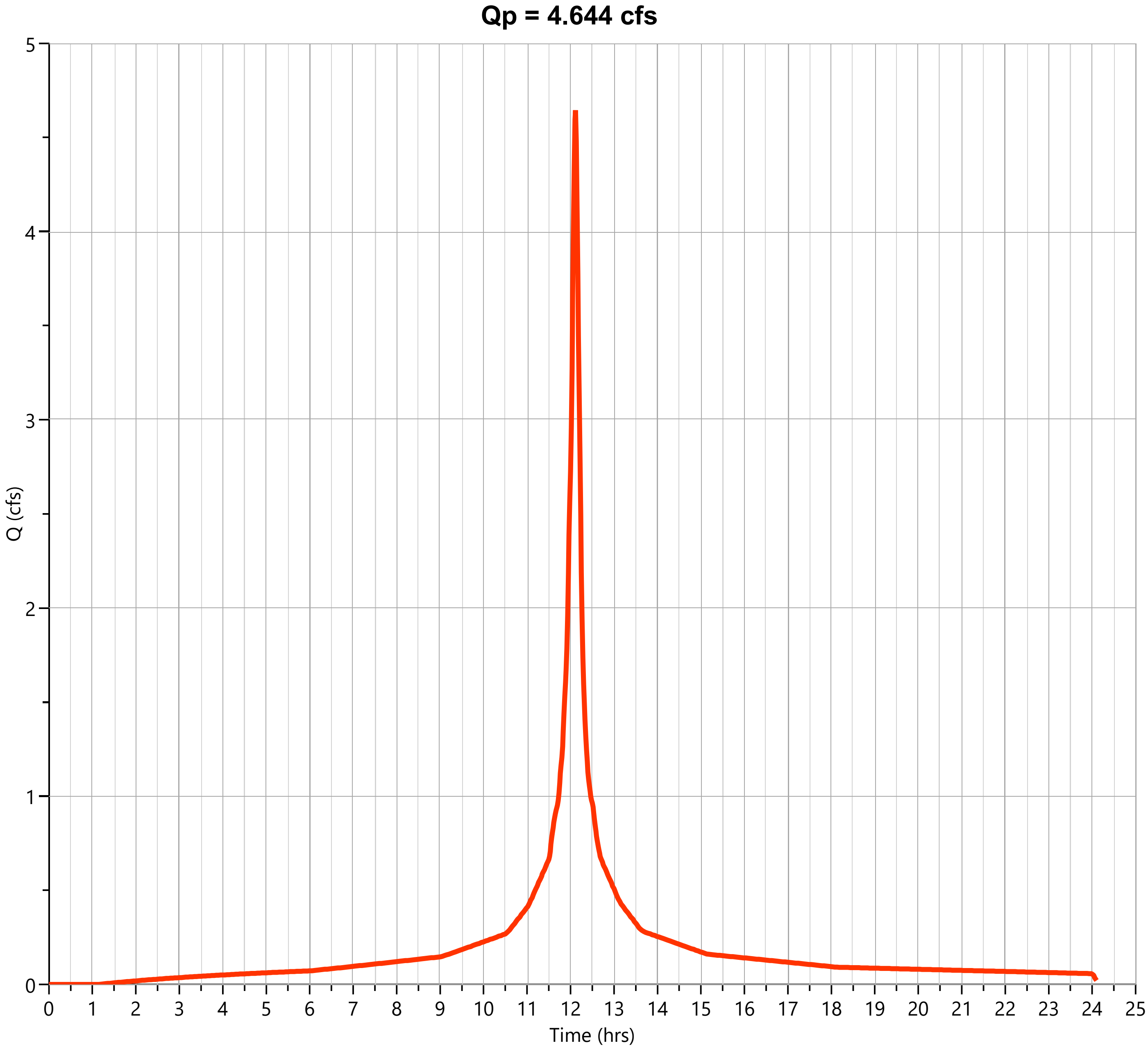
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.227 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.52 hrs
Time Interval	= 1 min	Runoff Volume	= 2,178 cuft
Drainage Area	= 1.27 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 20.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (D) (IMP)

Hyd. No. 2

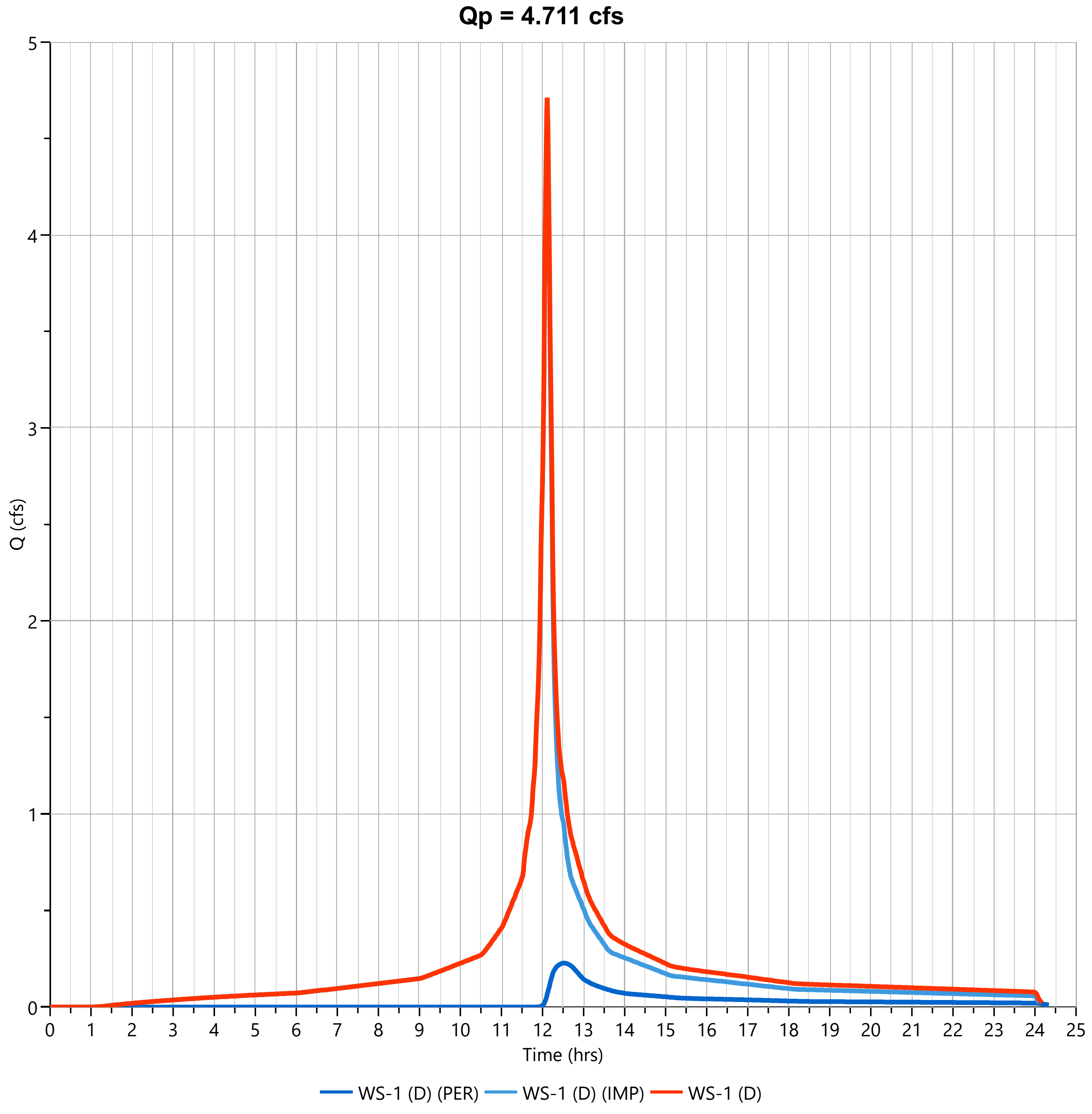
Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.644 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Runoff Volume	= 17,544 cuft
Drainage Area	= 1.51 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 4.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (D)

Hyd. No. 3

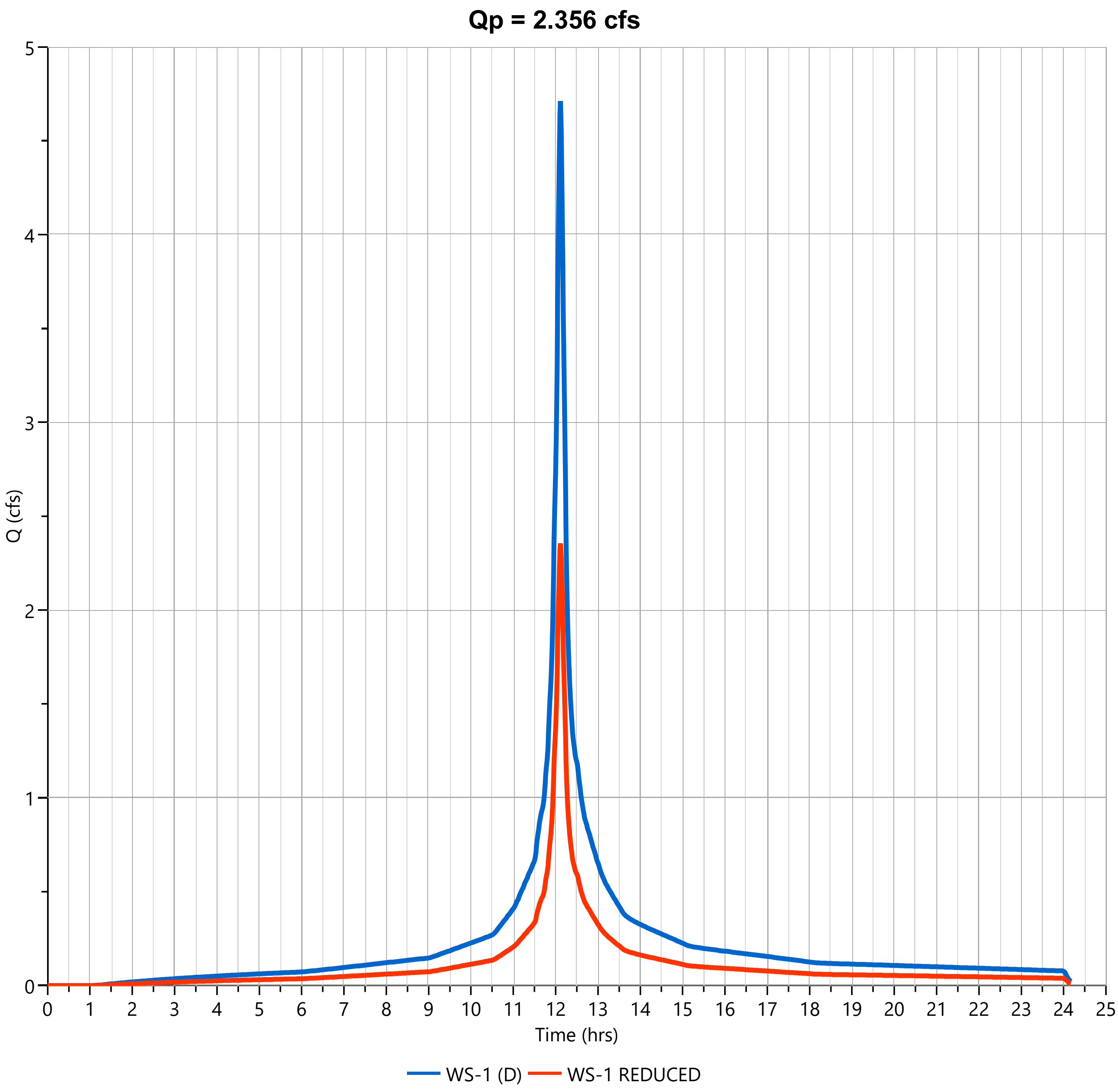
Hydrograph Type	= Junction	Peak Flow	= 4.711 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 19,721 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 2.78 ac



WS-1 REDUCED

Hyd. No. 4

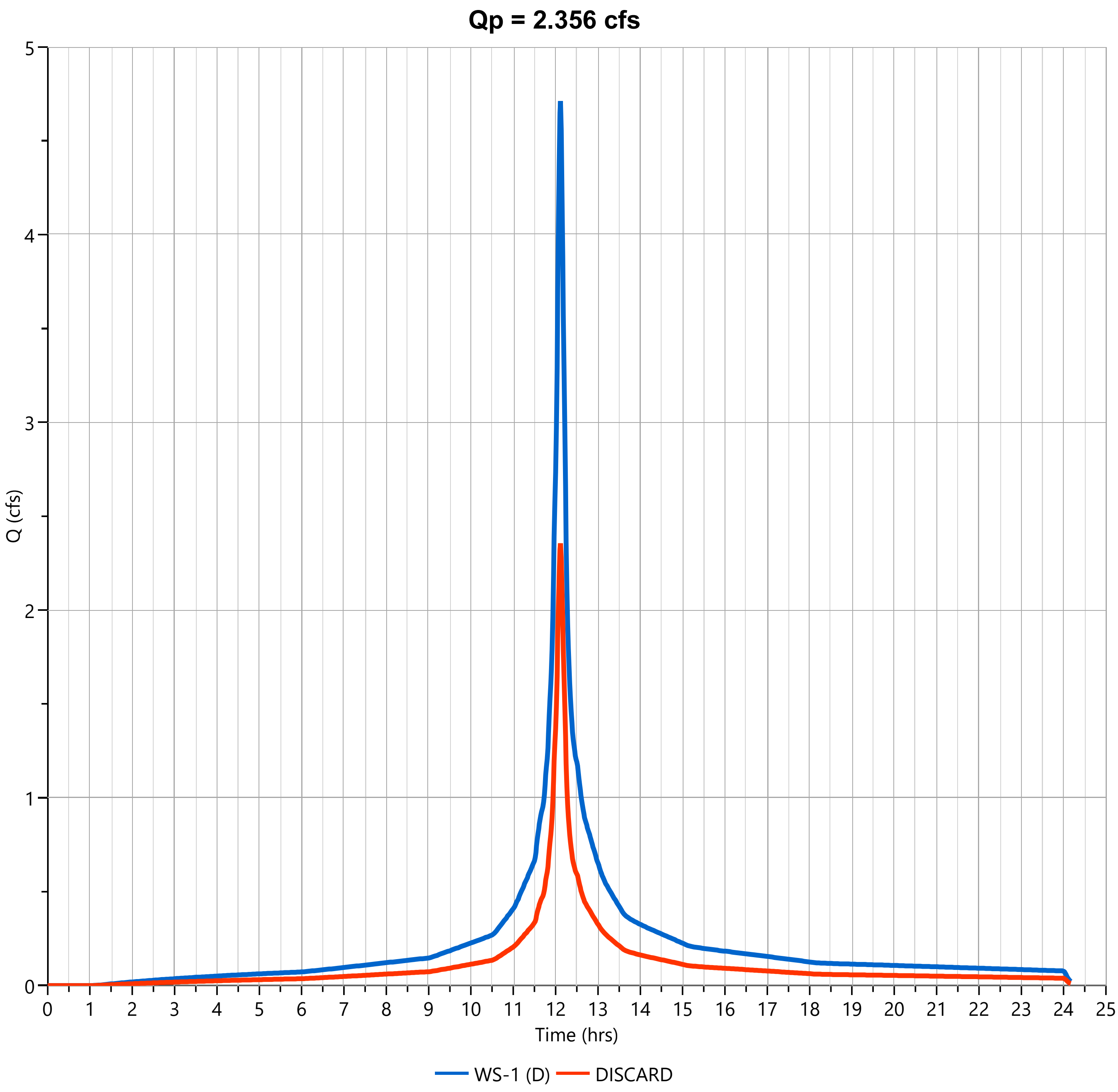
Hydrograph Type	= Diversion	Peak Flow	= 2.356 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 9,861 cuft
Inflow Hydrograph	= 3 - WS-1 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 5 - DISCARD	Flow Ratio	= 0.5



DISCARD

Hyd. No. 5

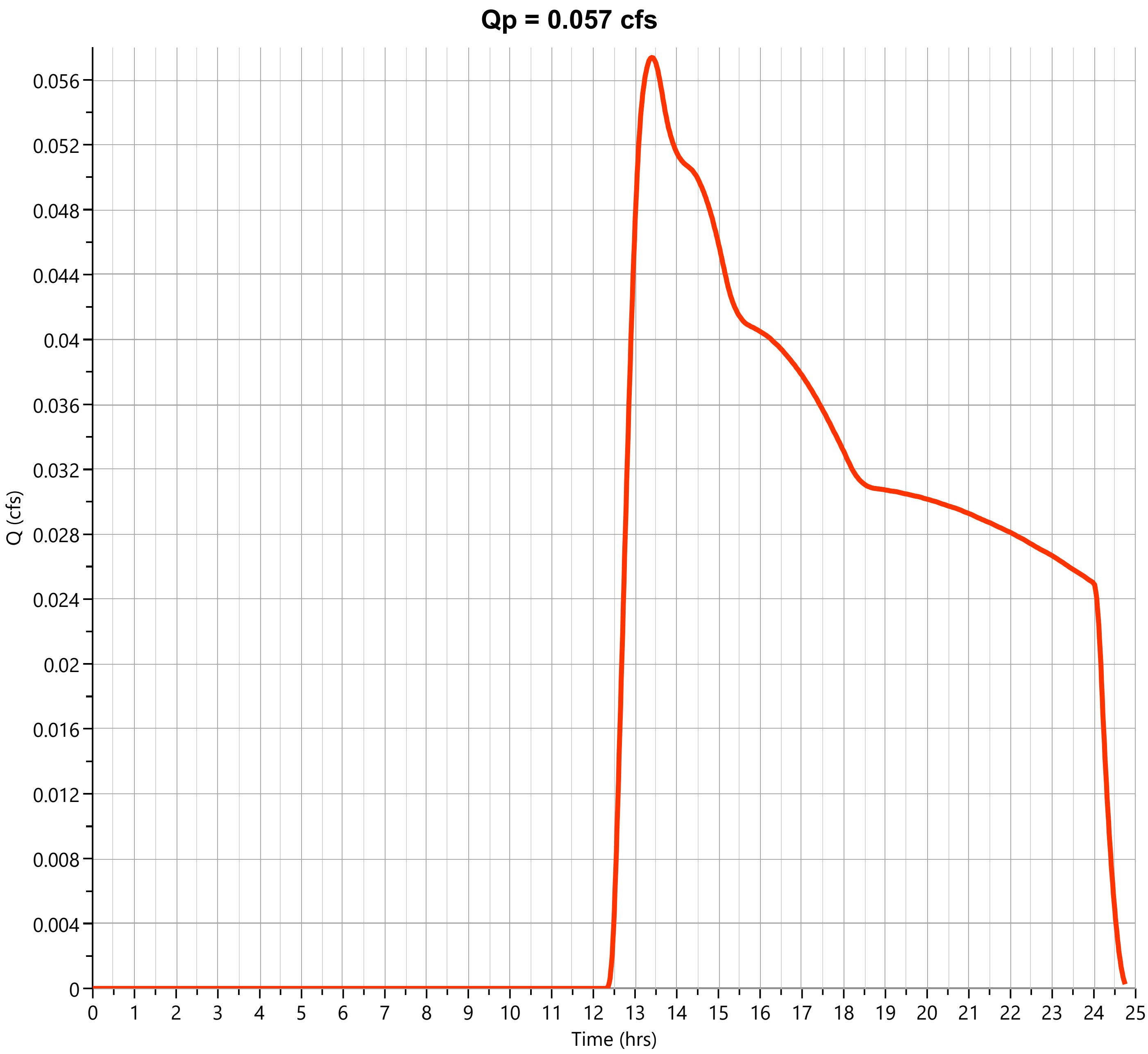
Hydrograph Type	= Diversion	Peak Flow	= 2.356 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 9,861 cuft
Inflow Hydrograph	= 3 - WS-1 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 4 - WS-1 REDUCED	Flow Ratio	= 0.5



WS-1 (U) (PER)

Hyd. No. 6

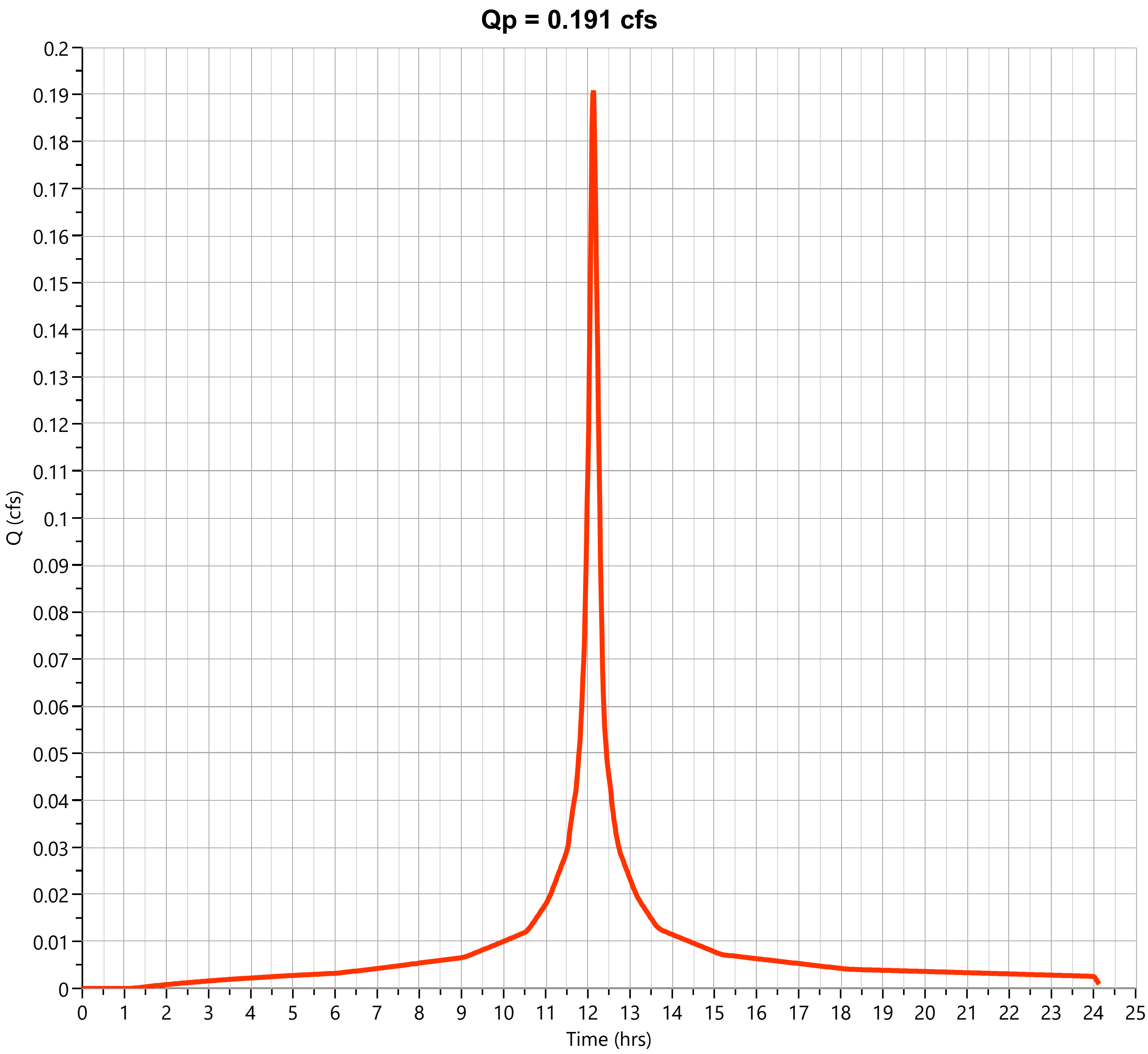
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.057 cfs
Storm Frequency	= 2-yr	Time to Peak	= 13.40 hrs
Time Interval	= 1 min	Runoff Volume	= 1,498 cuft
Drainage Area	= 3.54 ac	Curve Number	= 48.00
Tc Method	= User	Time of Conc. (Tc)	= 18.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (U) (IMP)

Hyd. No. 7

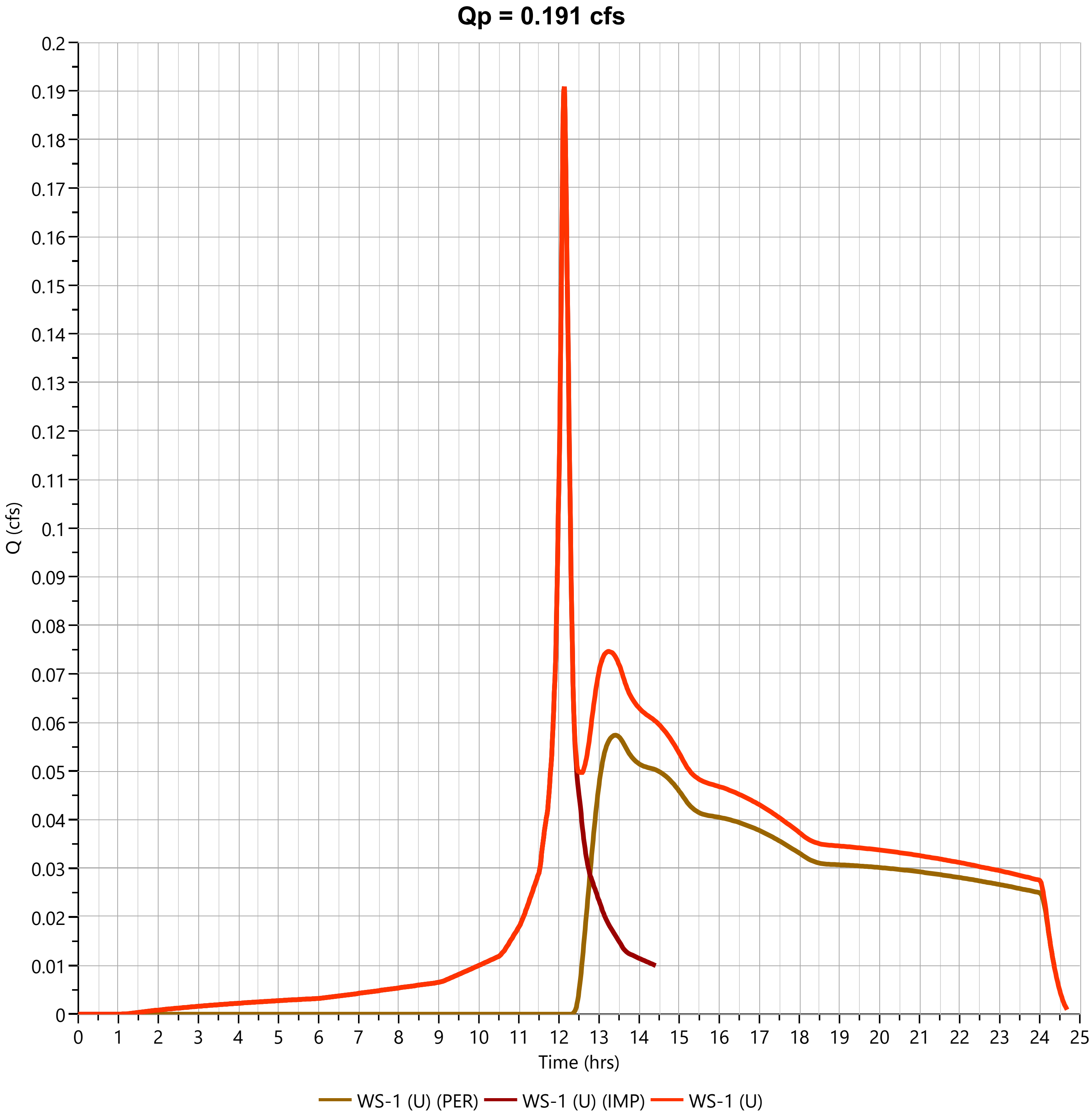
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.191 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Runoff Volume	= 784 cuft
Drainage Area	= 0.07 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (U)

Hyd. No. 8

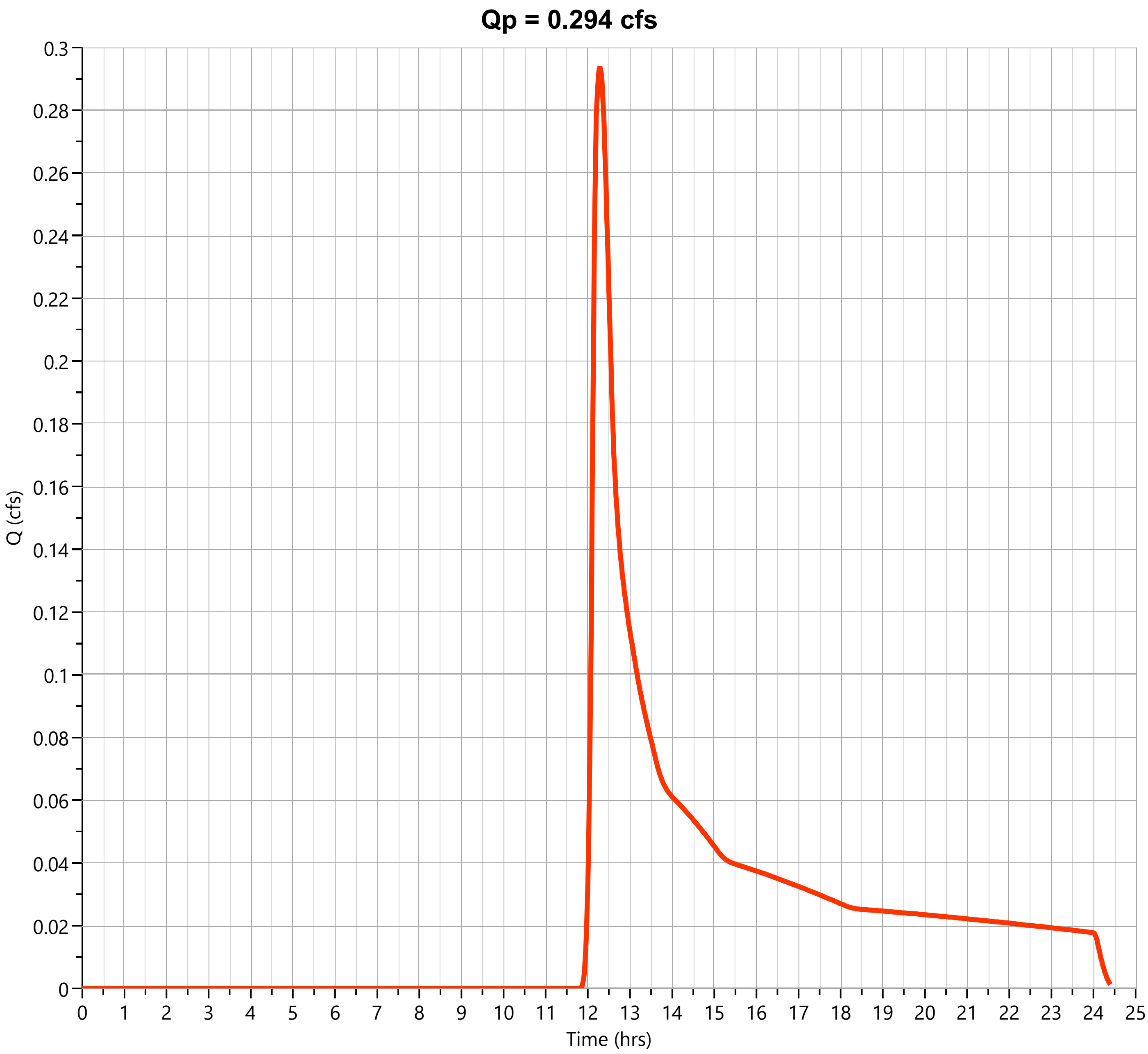
Hydrograph Type	= Junction	Peak Flow	= 0.191 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,282 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 3.61 ac



WS-2 (D) (PER)

Hyd. No. 9

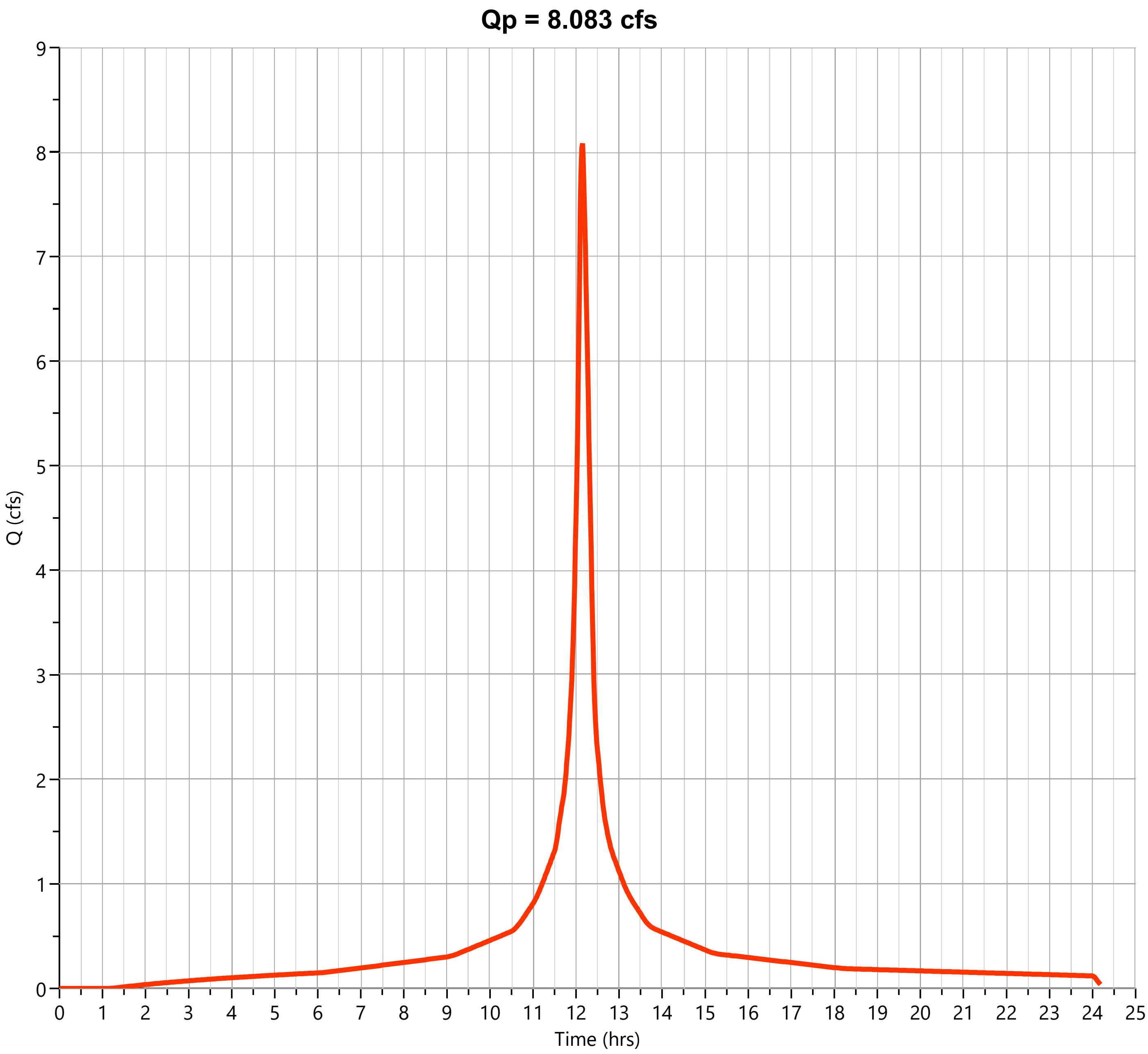
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.294 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.28 hrs
Time Interval	= 1 min	Runoff Volume	= 2,036 cuft
Drainage Area	= 1.1 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (D) (IMP)

Hyd. No. 10

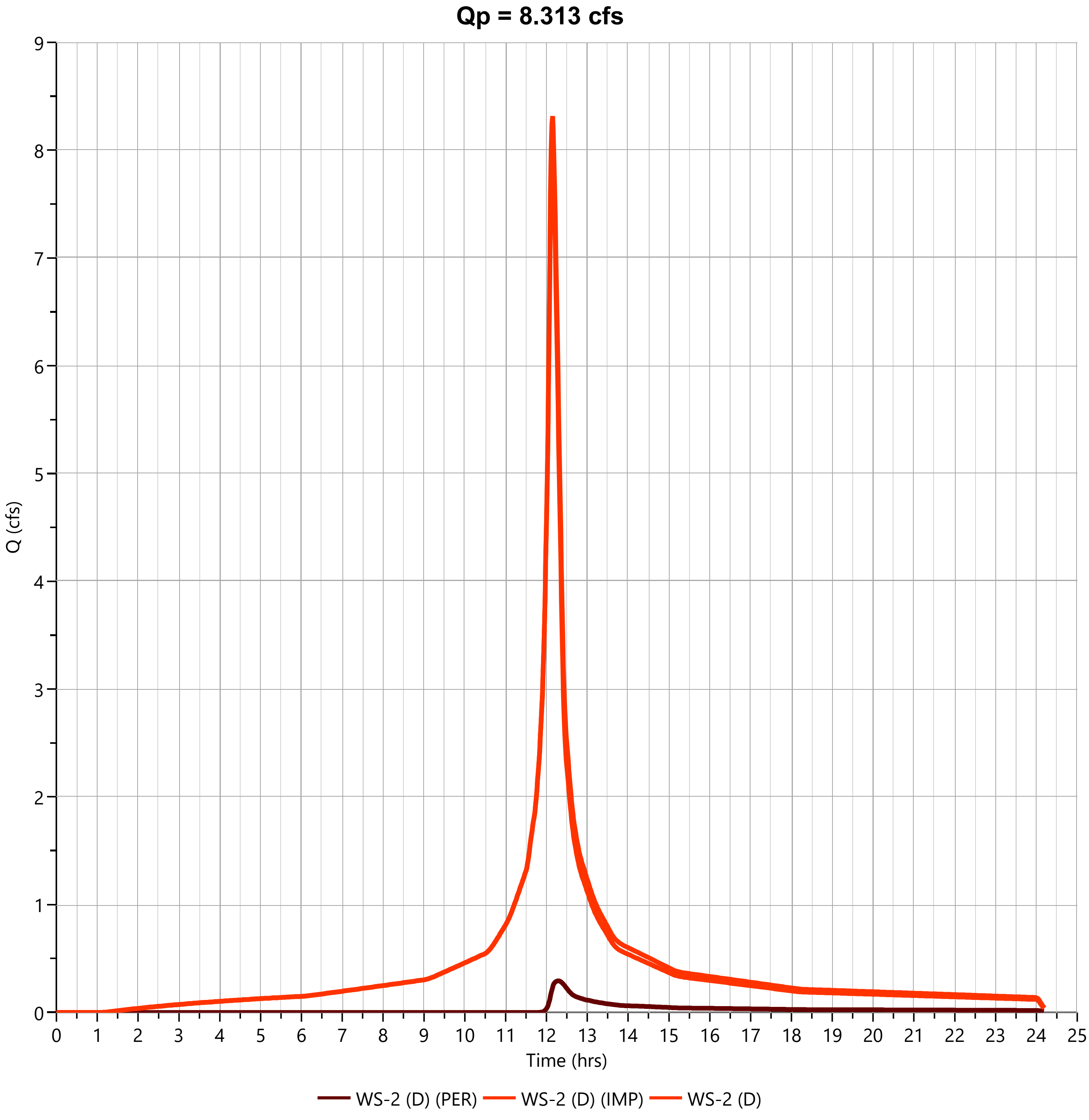
Hydrograph Type	= NRCS Runoff	Peak Flow	= 8.083 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Runoff Volume	= 36,419 cuft
Drainage Area	= 3.18 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 8.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (D)

Hyd. No. 11

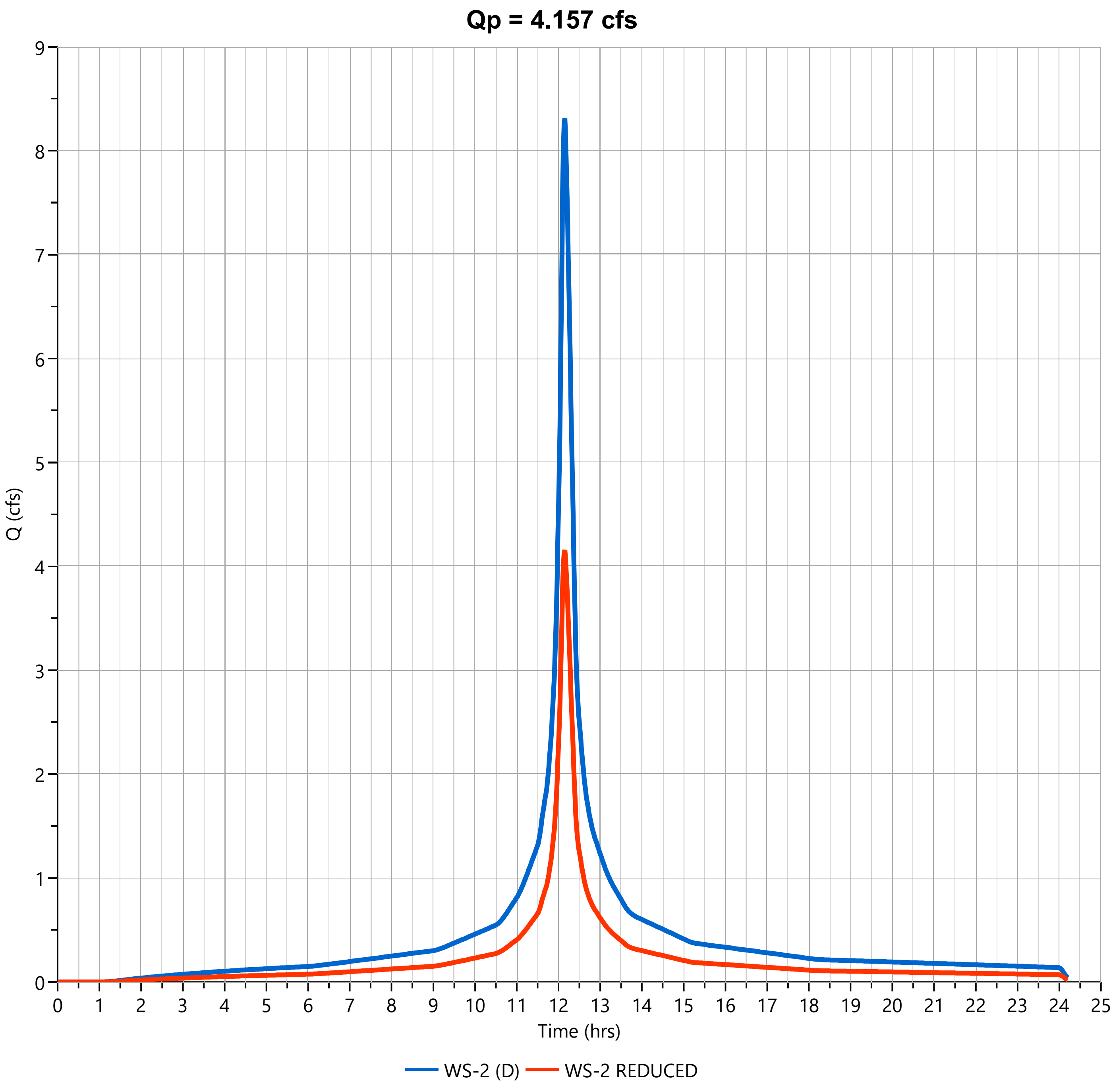
Hydrograph Type	= Junction	Peak Flow	= 8.313 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 38,455 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 4.28 ac



WS-2 REDUCED

Hyd. No. 12

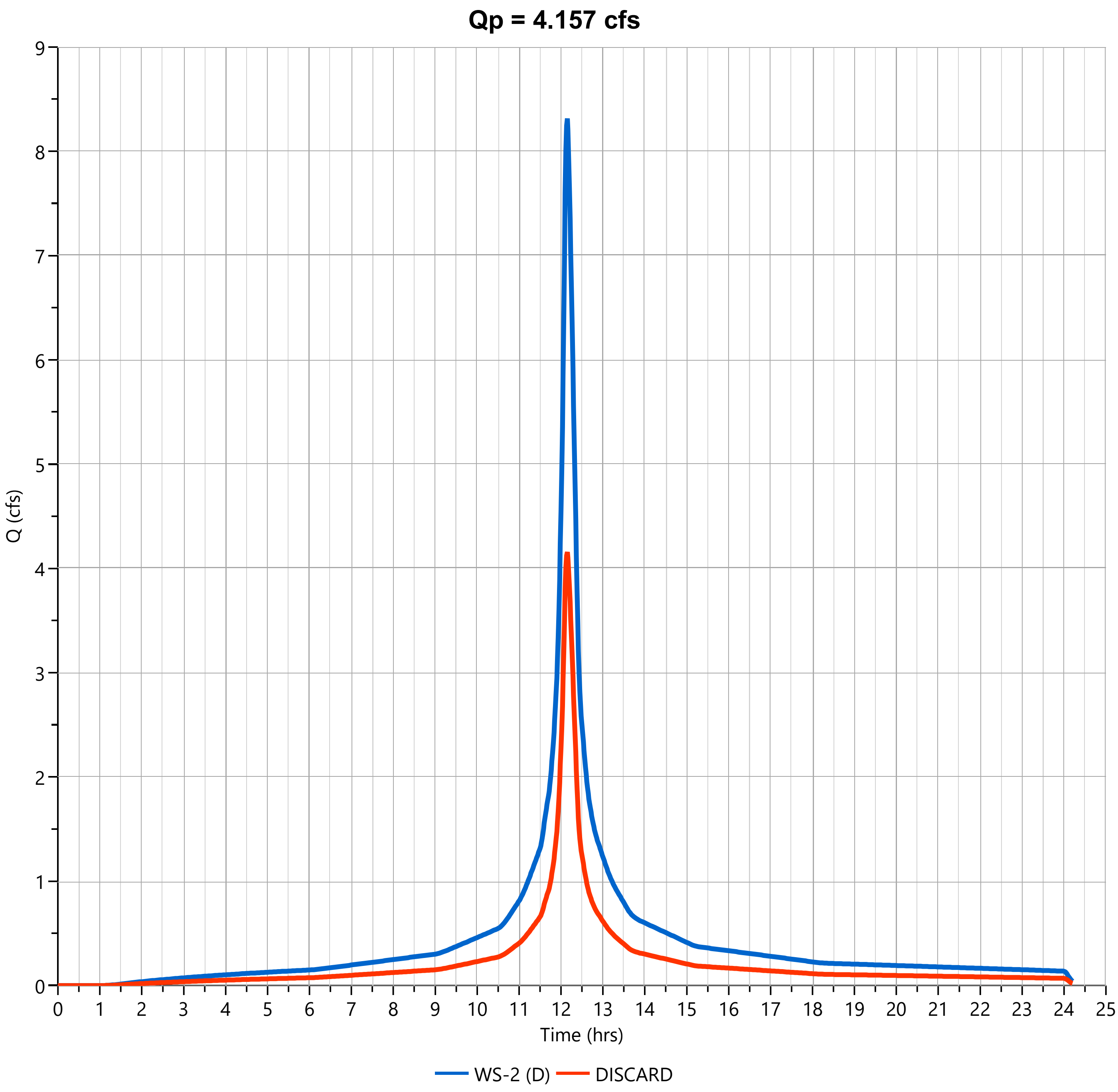
Hydrograph Type	= Diversion	Peak Flow	= 4.157 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 19,227 cuft
Inflow Hydrograph	= 11 - WS-2 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 13 - DISCARD	Flow Ratio	= 0.5



DISCARD

Hyd. No. 13

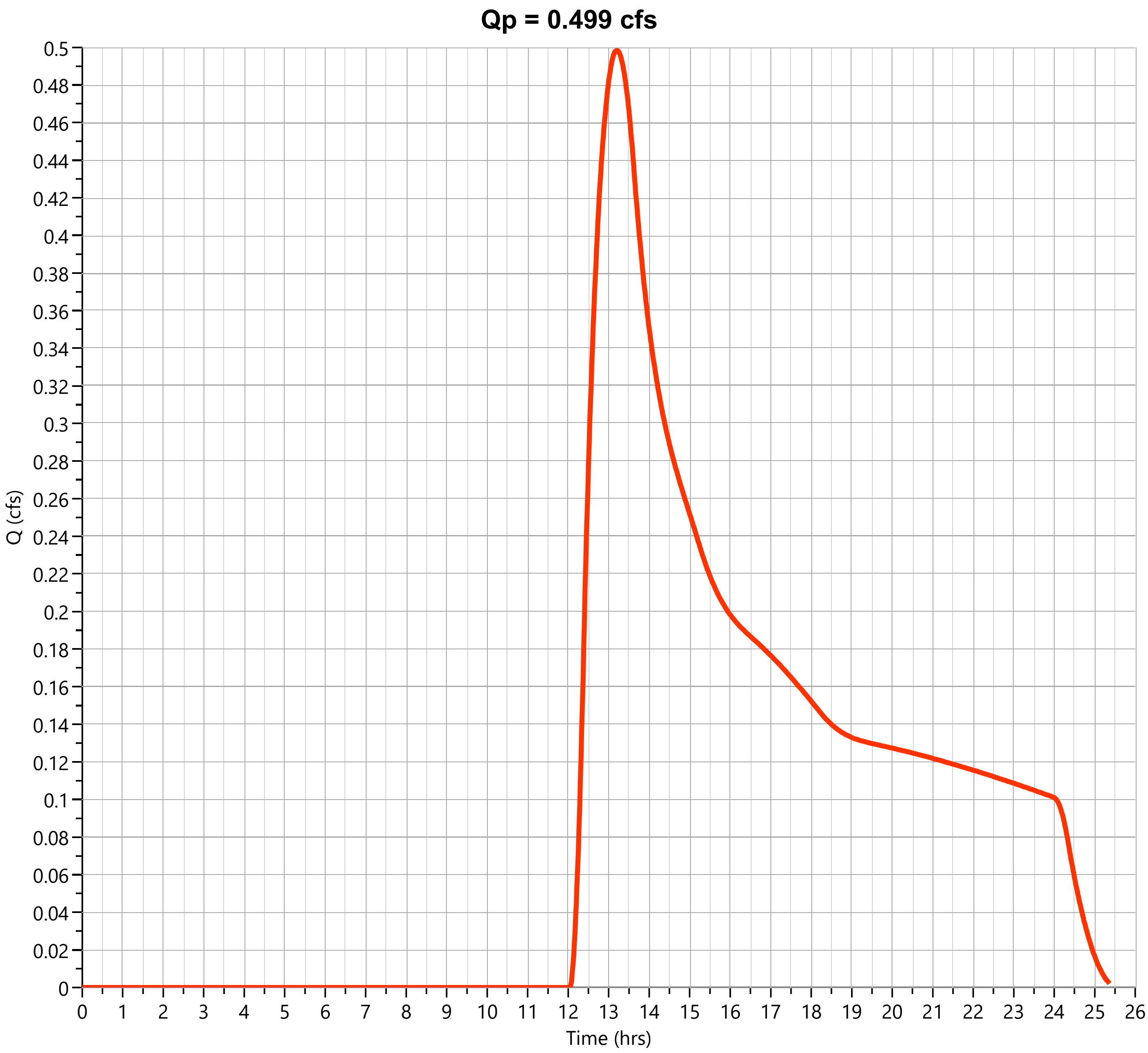
Hydrograph Type	= Diversion	Peak Flow	= 4.157 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 19,227 cuft
Inflow Hydrograph	= 11 - WS-2 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 12 - WS-2 REDUCED	Flow Ratio	= 0.5



WS-2 (U) (PER)

Hyd. No. 14

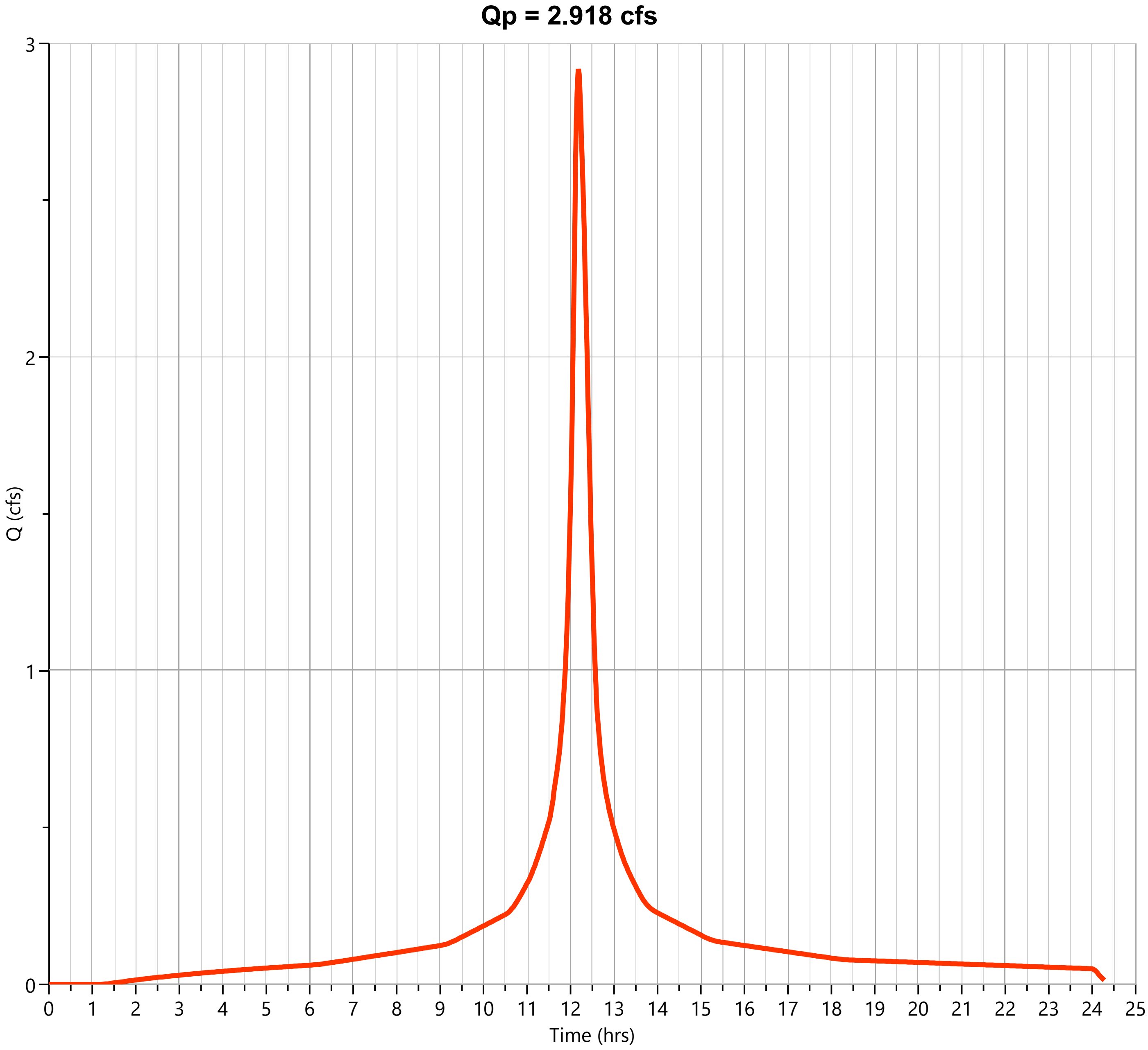
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.499 cfs
Storm Frequency	= 2-yr	Time to Peak	= 13.20 hrs
Time Interval	= 1 min	Runoff Volume	= 8,487 cuft
Drainage Area	= 8.81 ac	Curve Number	= 54.00
Tc Method	= User	Time of Conc. (Tc)	= 35.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (U) (IMP)

Hyd. No. 15

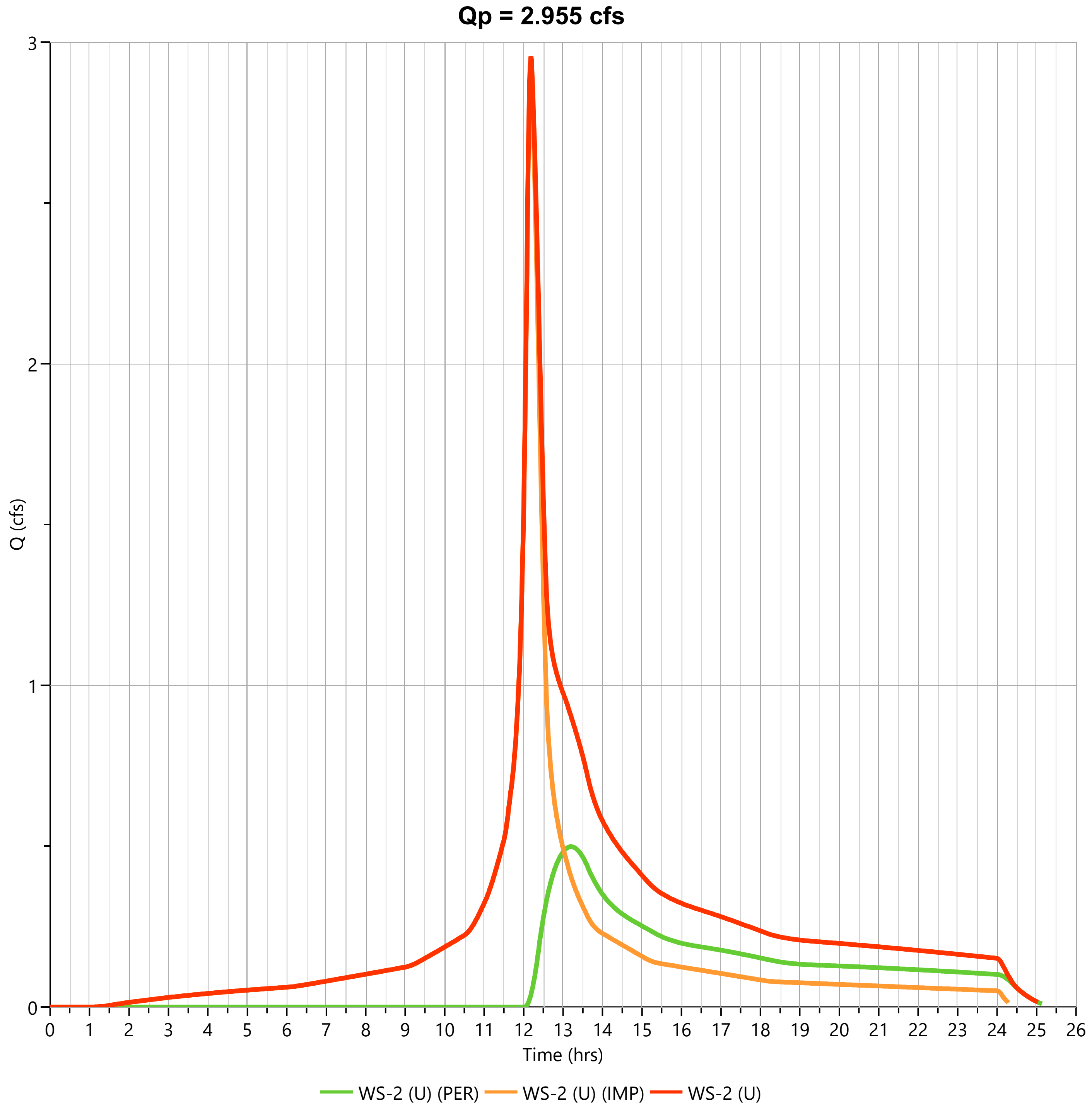
Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.918 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 15,137 cuft
Drainage Area	= 1.33 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (U)

Hyd. No. 16

Hydrograph Type	= Junction	Peak Flow	= 2.955 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Hydrograph Volume	= 23,624 cuft
Inflow Hydrographs	= 14, 15	Total Contrib. Area	= 10.14 ac



Hydrograph Report

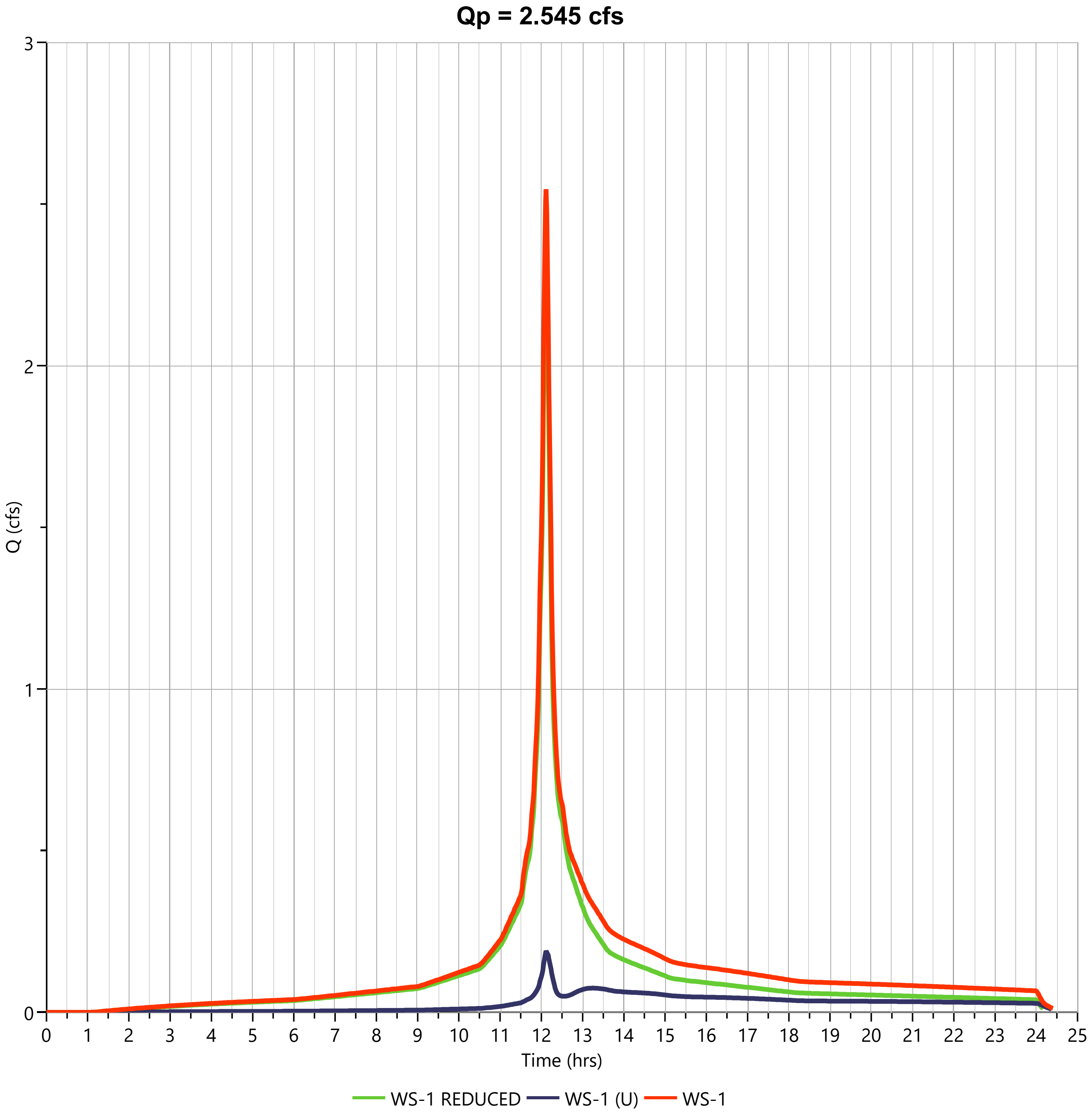
Hydrology Studio v 3.0.0.44

File: 102054601 - Current Existing.hys
07-23-2026

WS-1

Hyd. No. 17

Hydrograph Type	= Junction	Peak Flow	= 2.545 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 12,143 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac

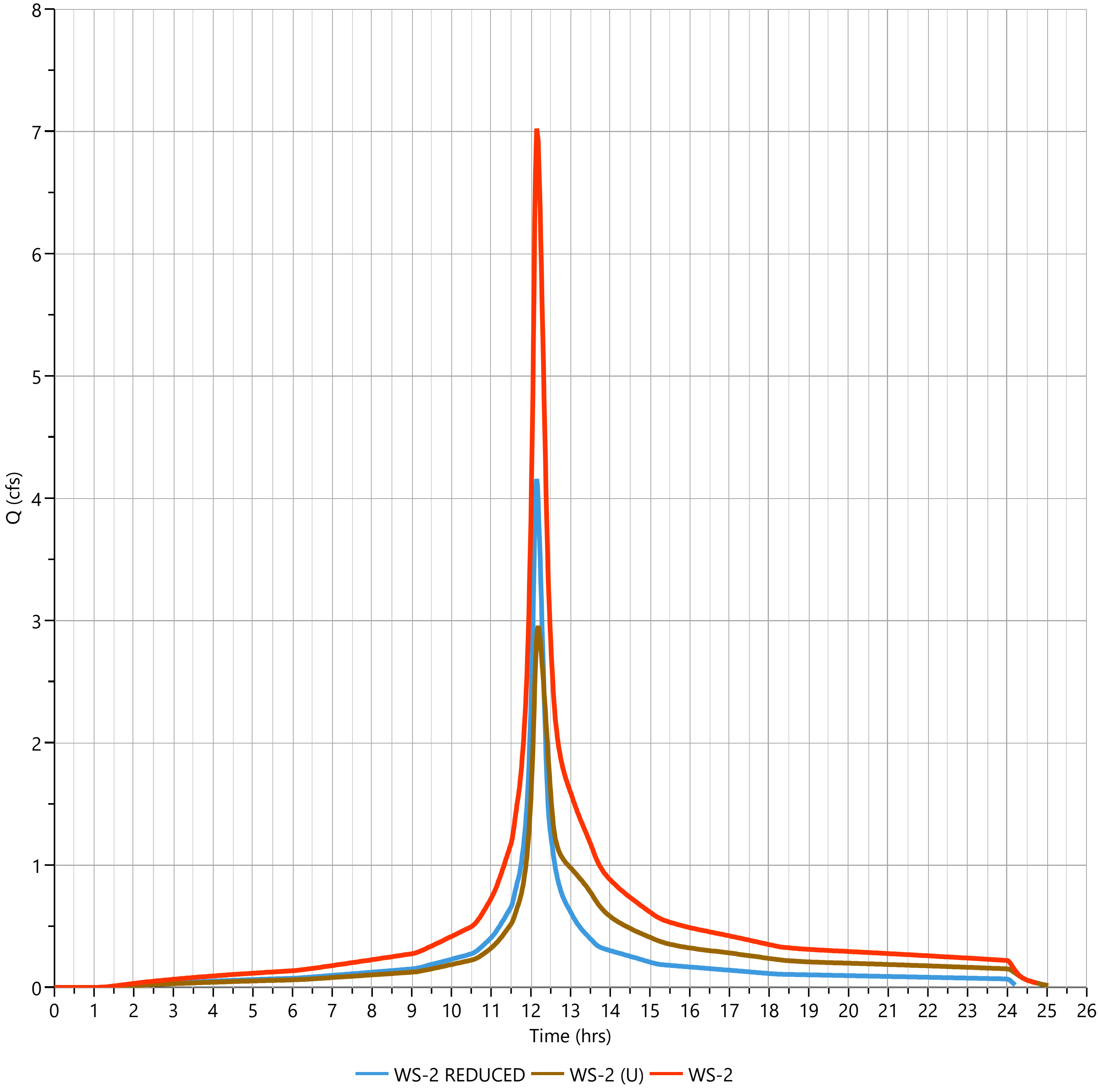


WS-2

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 7.033 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 42,851 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac

Qp = 7.033 cfs



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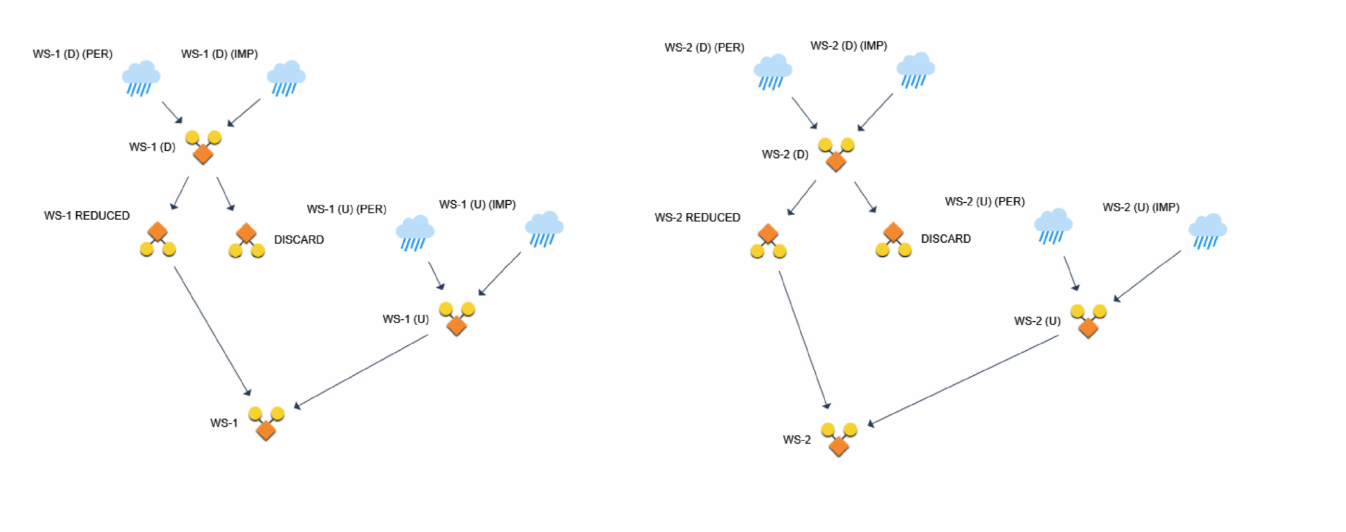
Basin Model

Hydrology Studio v 3.0.0.44

File: 102054601 - Current Existing.hys

07-23-2026


WS-1 (D) (PER)
WS-1 (D) (IMP)
WS-1 (D)
WS-1 REDUCED
DISCARD
WS-1 (U) (PER)
WS-1 (U) (IMP)
WS-1 (U)
WS-1
WS-2 (D) (PER)
WS-2 (D) (IMP)
WS-2 (D)
WS-2 REDUCED
DISCARD
WS-2 (U) (PER)
WS-2 (U) (IMP)
WS-2 (U)
WS-2

Hydrograph by Return Period

Hydrology Studio v 3.0.0.44

File: 102054601 - Current Existing.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	WS-1 (D) (PER)					0.960			
2	NRCS Runoff	WS-1 (D) (IMP)					7.271			
3	Junction	WS-1 (D)					7.821			
4	Diversion1	WS-1 REDUCED					5.866			
5	Diversion2	DISCARD					1.955			
6	NRCS Runoff	WS-1 (U) (PER)					0.882			
7	NRCS Runoff	WS-1 (U) (IMP)					0.299			
8	Junction	WS-1 (U)					0.953			
9	NRCS Runoff	WS-2 (D) (PER)					1.186			
10	NRCS Runoff	WS-2 (D) (IMP)					12.66			
11	Junction	WS-2 (D)					13.75			
12	Diversion1	WS-2 REDUCED					10.31			
13	Diversion2	DISCARD					3.438			
14	NRCS Runoff	WS-2 (U) (PER)					3.039			
15	NRCS Runoff	WS-2 (U) (IMP)					4.572			
16	Junction	WS-2 (U)					5.850			
17	Junction	WS-1					6.414			
18	Junction	WS-2					15.78			

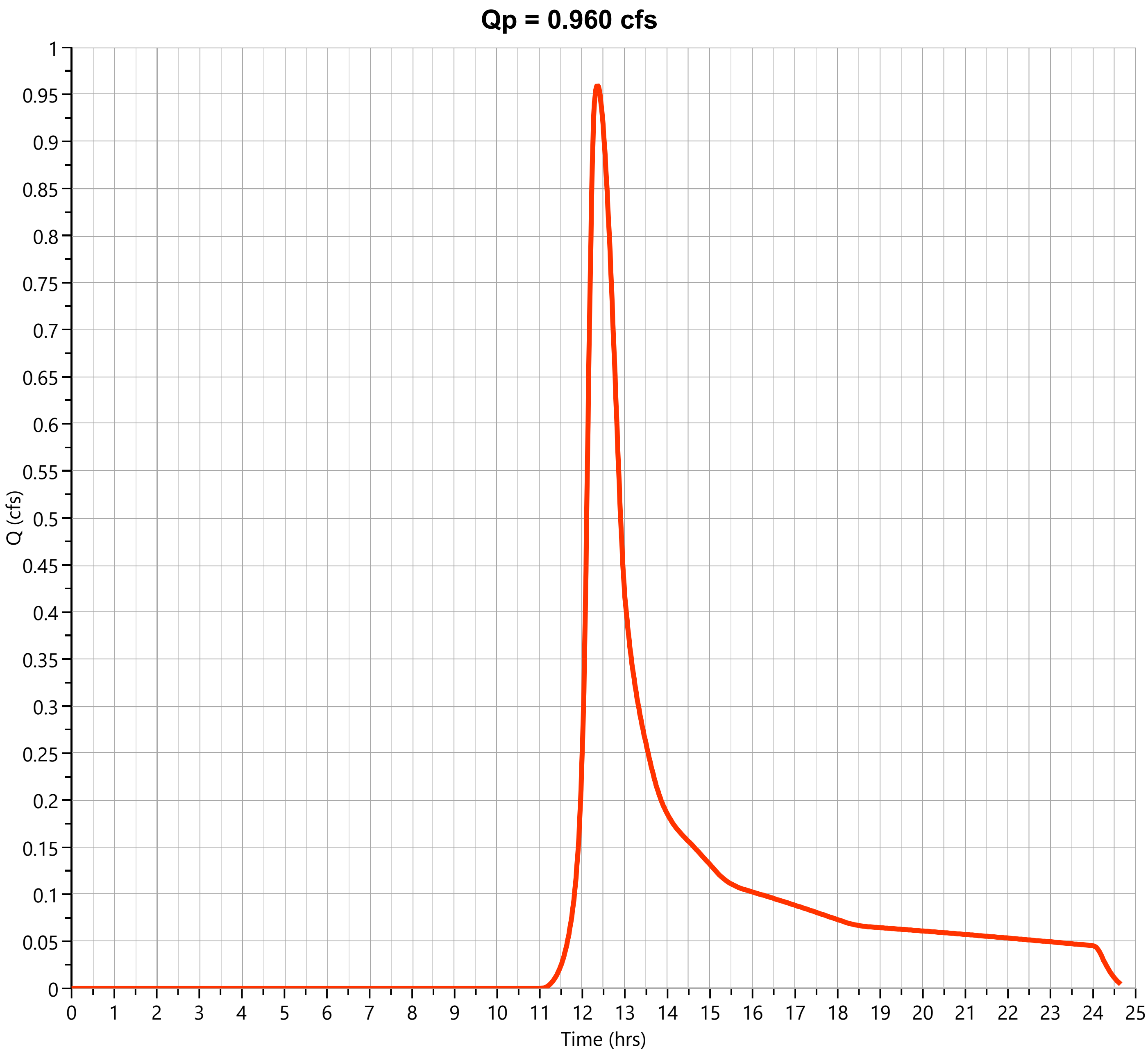
Hydrograph 10-yr Summary

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	WS-1 (D) (PER)	0.960	12.35	6,627	----		
2	NRCS Runoff	WS-1 (D) (IMP)	7.271	12.12	27,990	----		
3	Junction	WS-1 (D)	7.821	12.12	34,617	1, 2		
4	Diversion1	WS-1 REDUCED	5.866	12.12	25,963	3		
5	Diversion2	DISCARD	1.955	12.12	8,654	3		
6	NRCS Runoff	WS-1 (U) (PER)	0.882	12.50	8,578	----		
7	NRCS Runoff	WS-1 (U) (IMP)	0.299	12.13	1,251	----		
8	Junction	WS-1 (U)	0.953	12.47	9,830	6, 7		
9	NRCS Runoff	WS-2 (D) (PER)	1.186	12.20	6,012	----		
10	NRCS Runoff	WS-2 (D) (IMP)	12.66	12.15	58,103	----		
11	Junction	WS-2 (D)	13.75	12.15	64,116	9, 10		
12	Diversion1	WS-2 REDUCED	10.31	12.15	48,087	11		
13	Diversion2	DISCARD	3.438	12.15	16,029	11		
14	NRCS Runoff	WS-2 (U) (PER)	3.039	12.73	32,547	----		
15	NRCS Runoff	WS-2 (U) (IMP)	4.572	12.18	24,150	----		
16	Junction	WS-2 (U)	5.850	12.25	56,697	14, 15		
17	Junction	WS-1	6.414	12.12	35,792	4, 8		
18	Junction	WS-2	15.78	12.17	104,784	12, 16		

WS-1 (D) (PER)

Hyd. No. 1

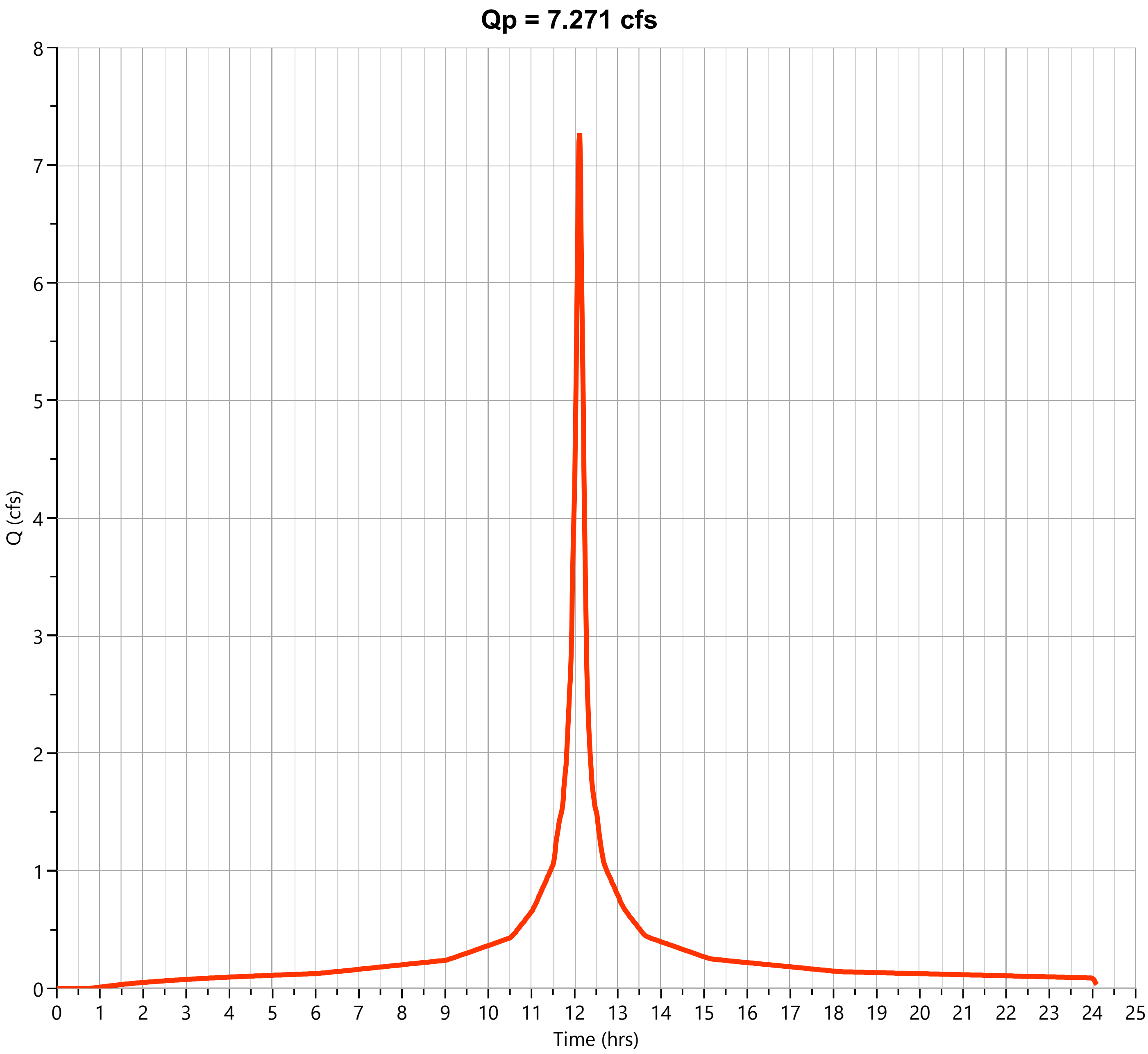
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.960 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.35 hrs
Time Interval	= 1 min	Runoff Volume	= 6,627 cuft
Drainage Area	= 1.27 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 20.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (D) (IMP)

Hyd. No. 2

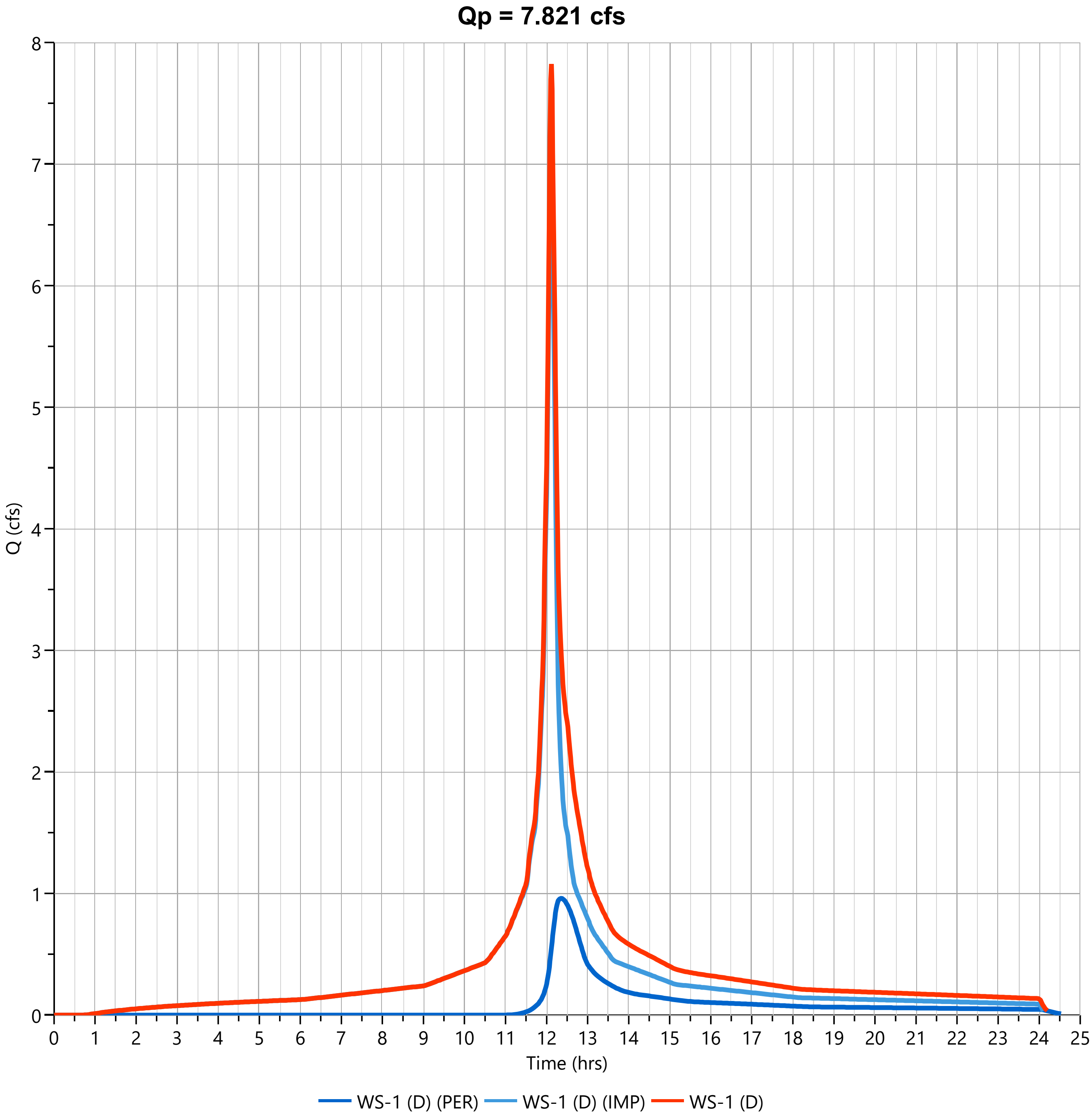
Hydrograph Type	= NRCS Runoff	Peak Flow	= 7.271 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Runoff Volume	= 27,990 cuft
Drainage Area	= 1.51 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 4.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (D)

Hyd. No. 3

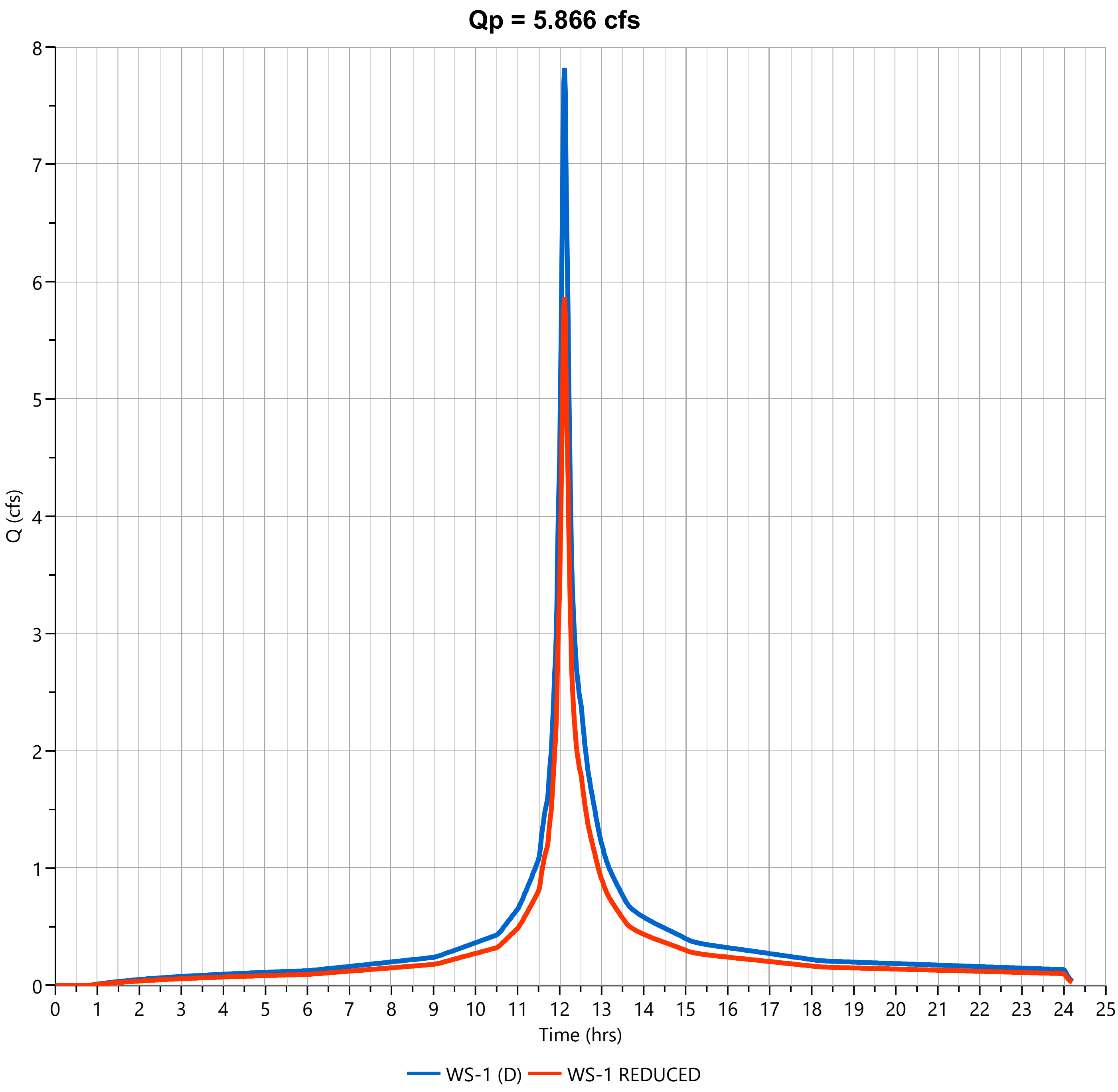
Hydrograph Type	= Junction	Peak Flow	= 7.821 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 34,617 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 2.78 ac



WS-1 REDUCED

Hyd. No. 4

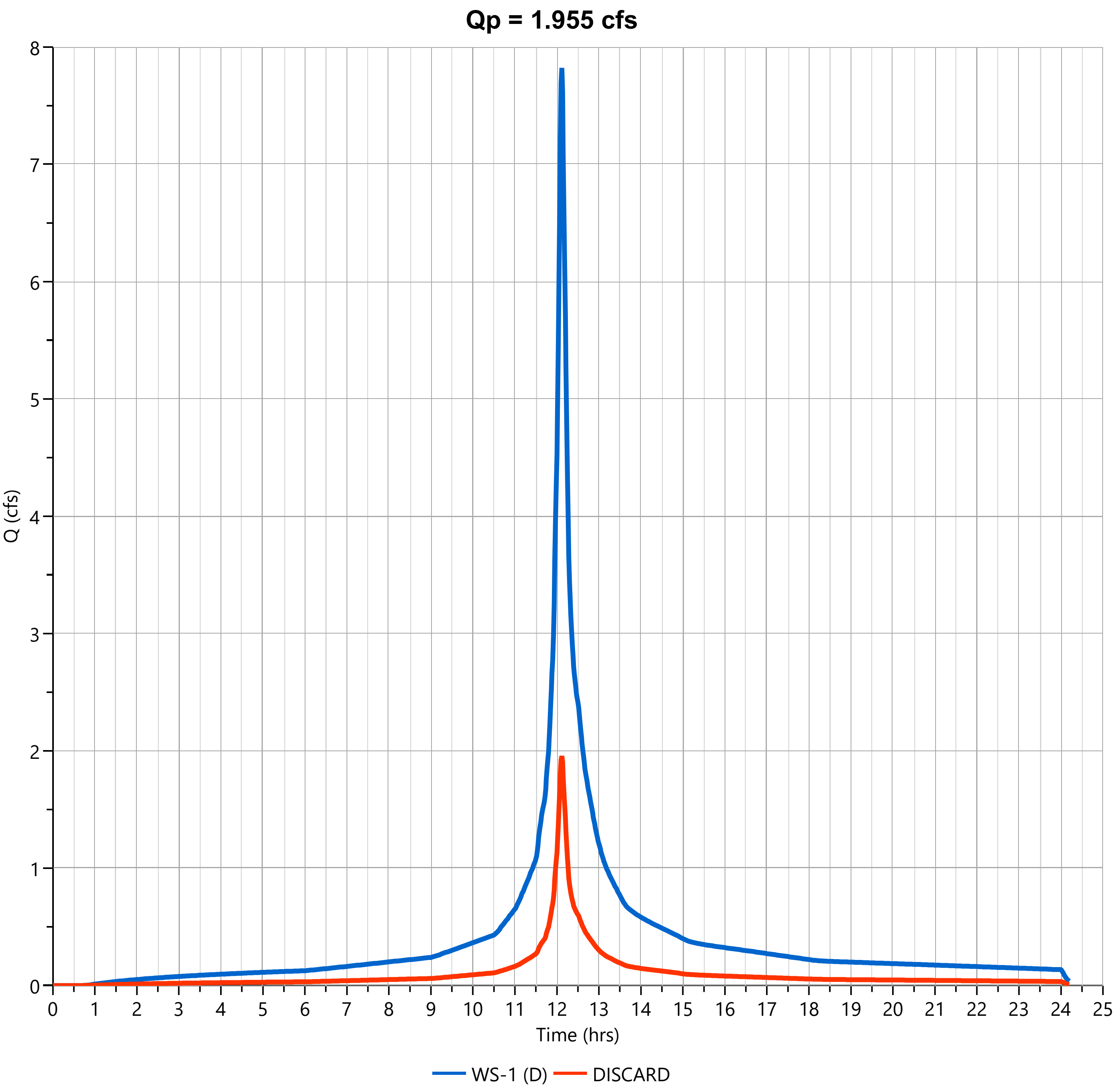
Hydrograph Type	= Diversion	Peak Flow	= 5.866 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 25,963 cuft
Inflow Hydrograph	= 3 - WS-1 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 5 - DISCARD	Flow Ratio	= 0.75



DISCARD

Hyd. No. 5

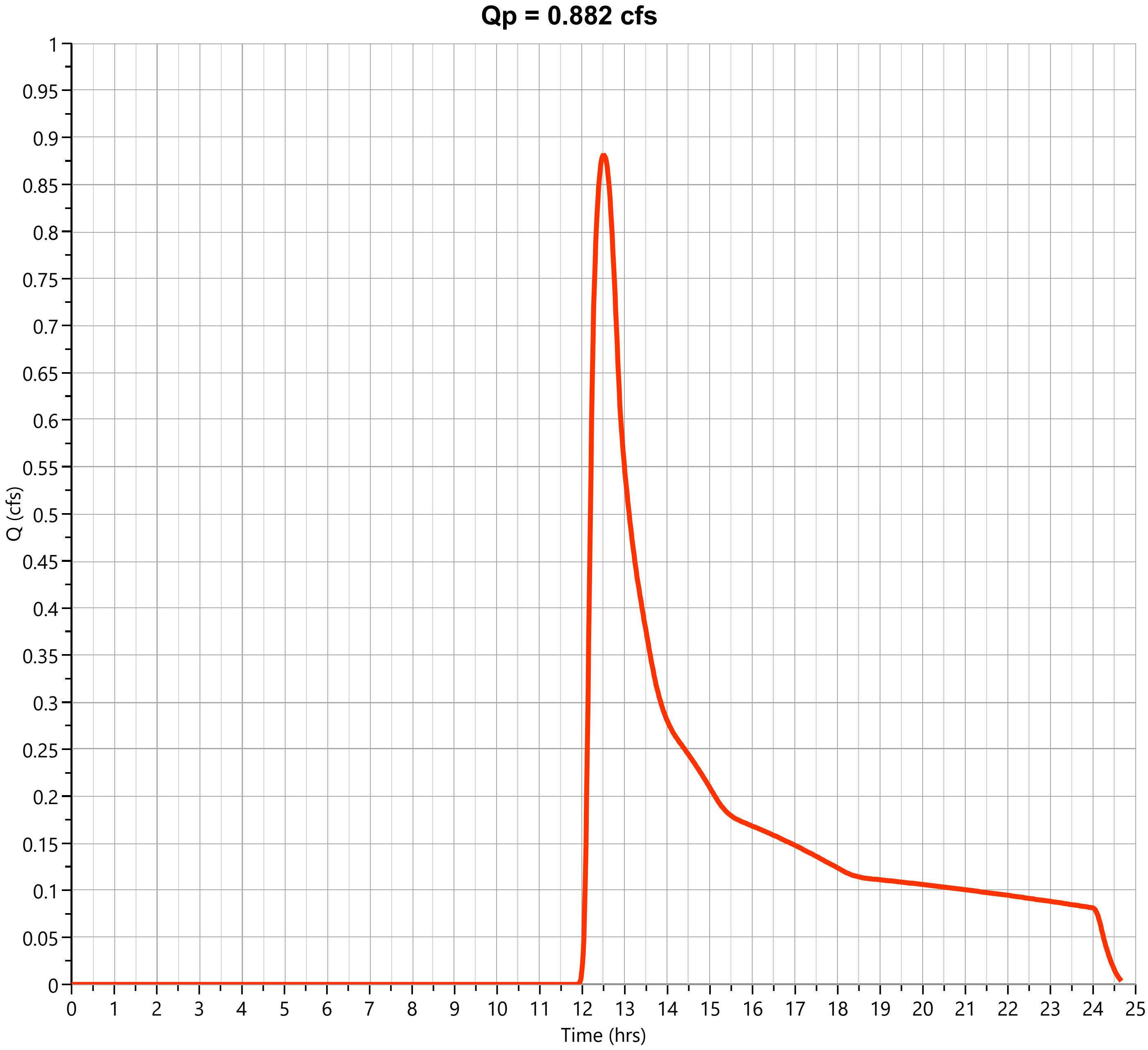
Hydrograph Type	= Diversion	Peak Flow	= 1.955 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 8,654 cuft
Inflow Hydrograph	= 3 - WS-1 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 4 - WS-1 REDUCED	Flow Ratio	= 0.75



WS-1 (U) (PER)

Hyd. No. 6

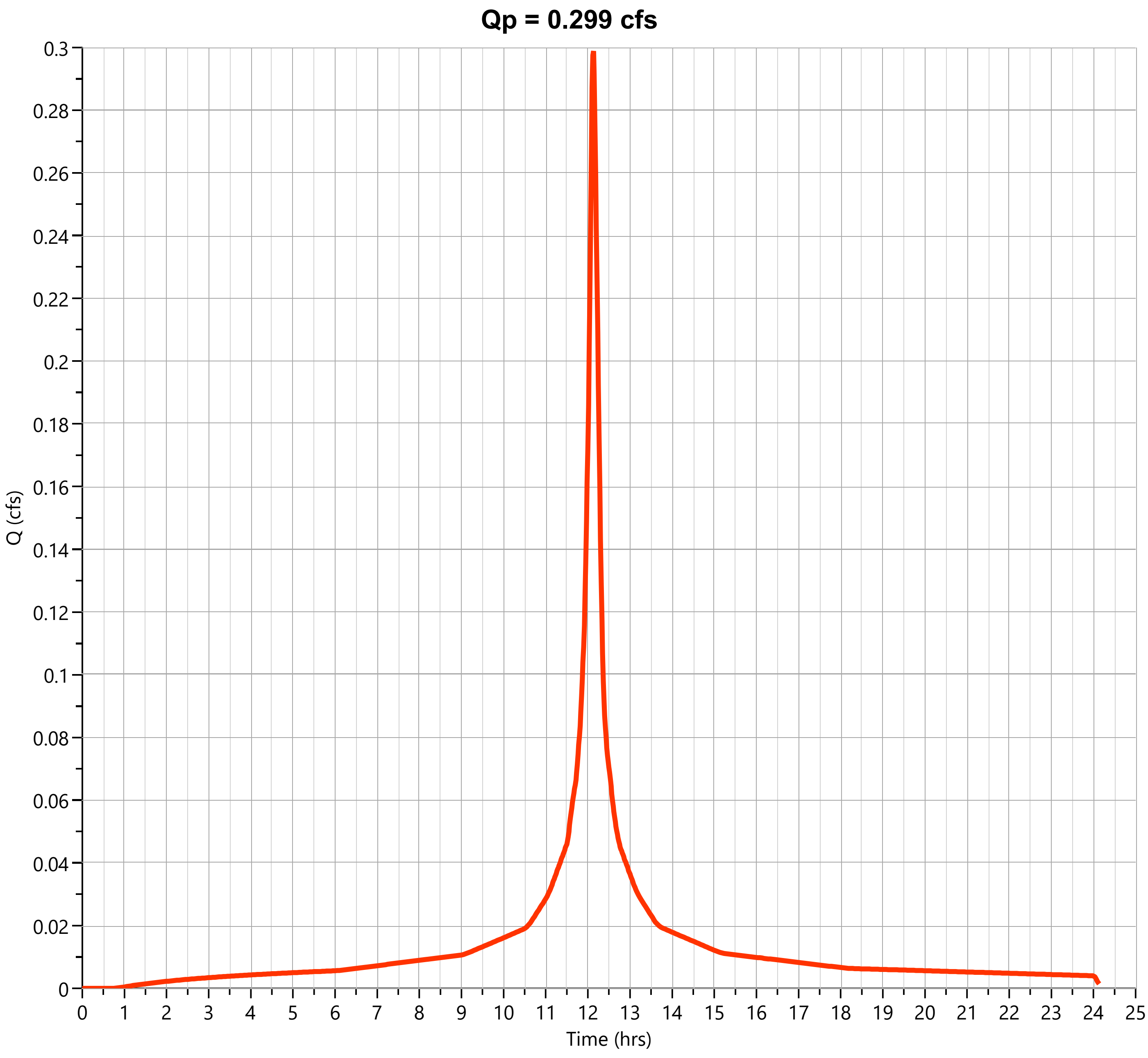
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.882 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.50 hrs
Time Interval	= 1 min	Runoff Volume	= 8,578 cuft
Drainage Area	= 3.54 ac	Curve Number	= 48.00
Tc Method	= User	Time of Conc. (Tc)	= 18.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (U) (IMP)

Hyd. No. 7

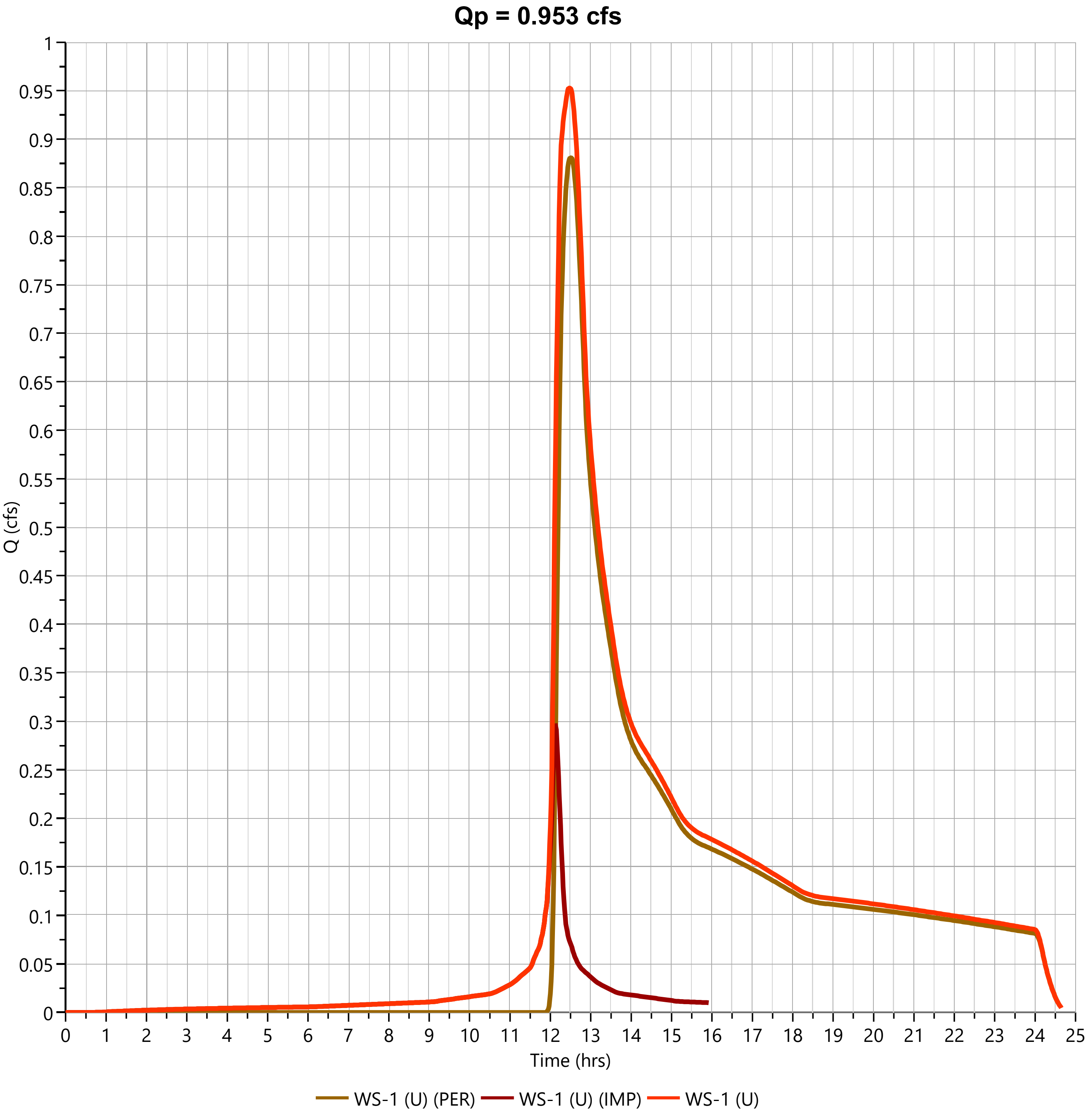
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.299 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Runoff Volume	= 1,251 cuft
Drainage Area	= 0.07 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (U)

Hyd. No. 8

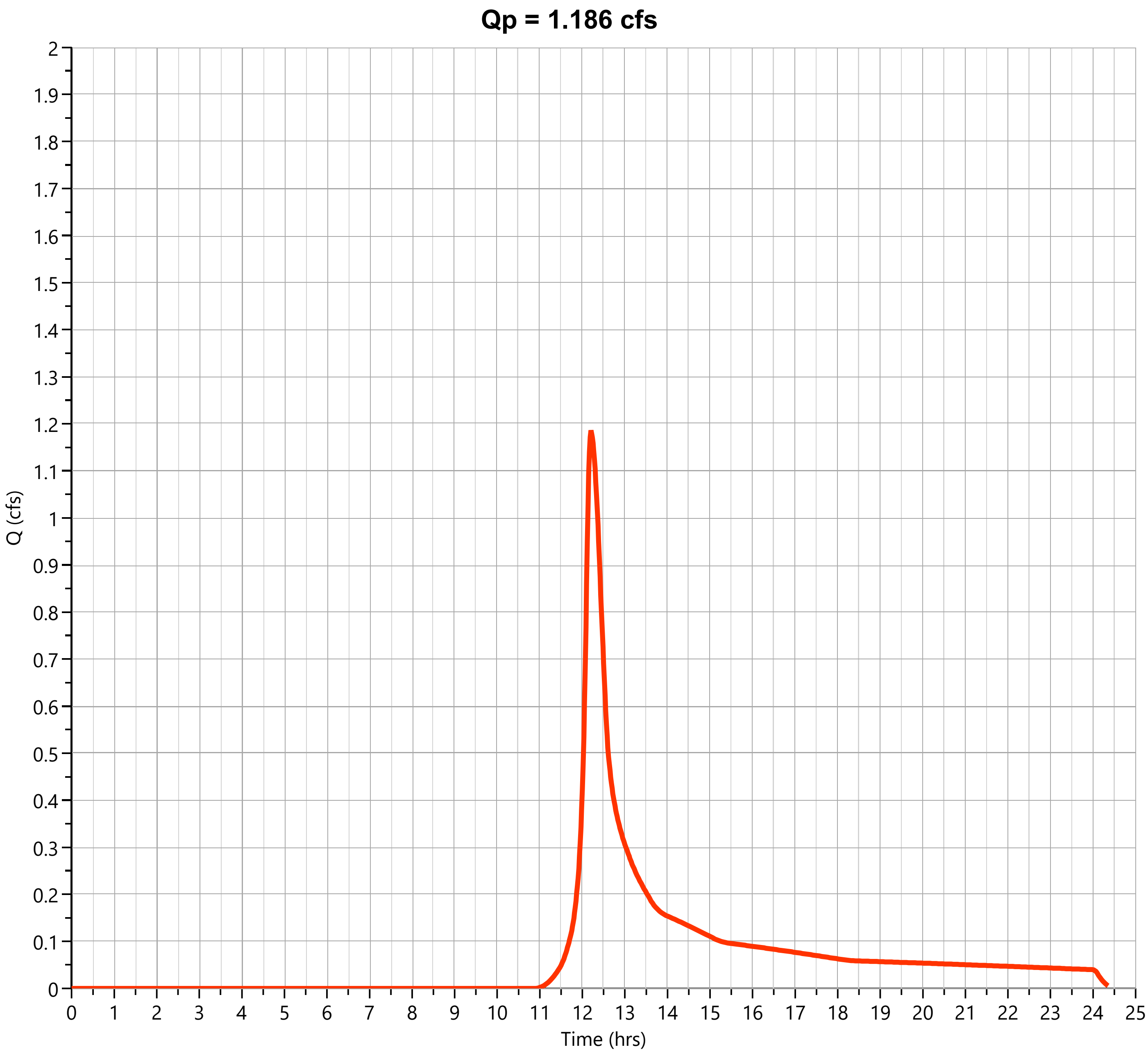
Hydrograph Type	= Junction	Peak Flow	= 0.953 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.47 hrs
Time Interval	= 1 min	Hydrograph Volume	= 9,830 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 3.61 ac



WS-2 (D) (PER)

Hyd. No. 9

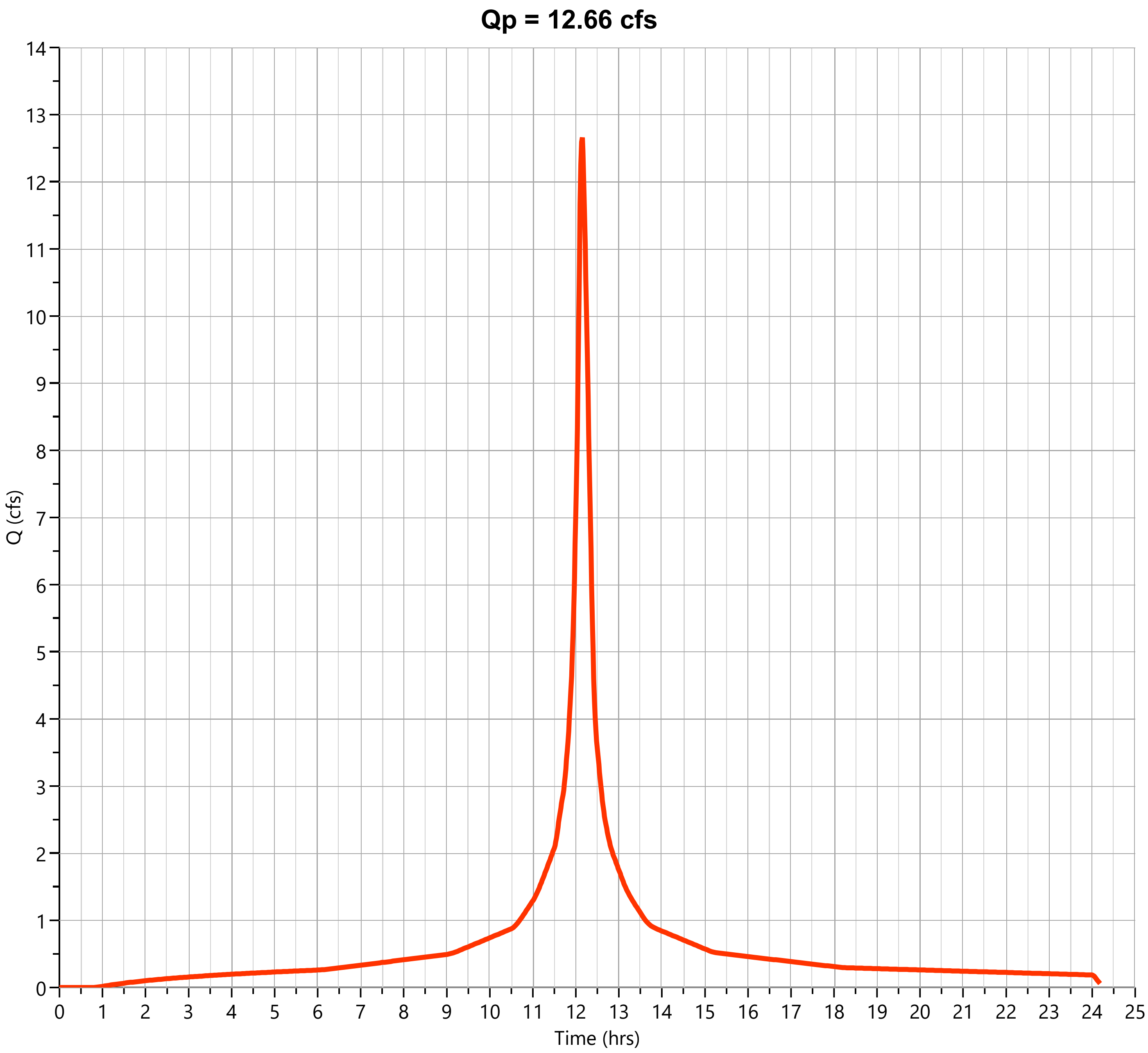
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.186 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.20 hrs
Time Interval	= 1 min	Runoff Volume	= 6,012 cuft
Drainage Area	= 1.1 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (D) (IMP)

Hyd. No. 10

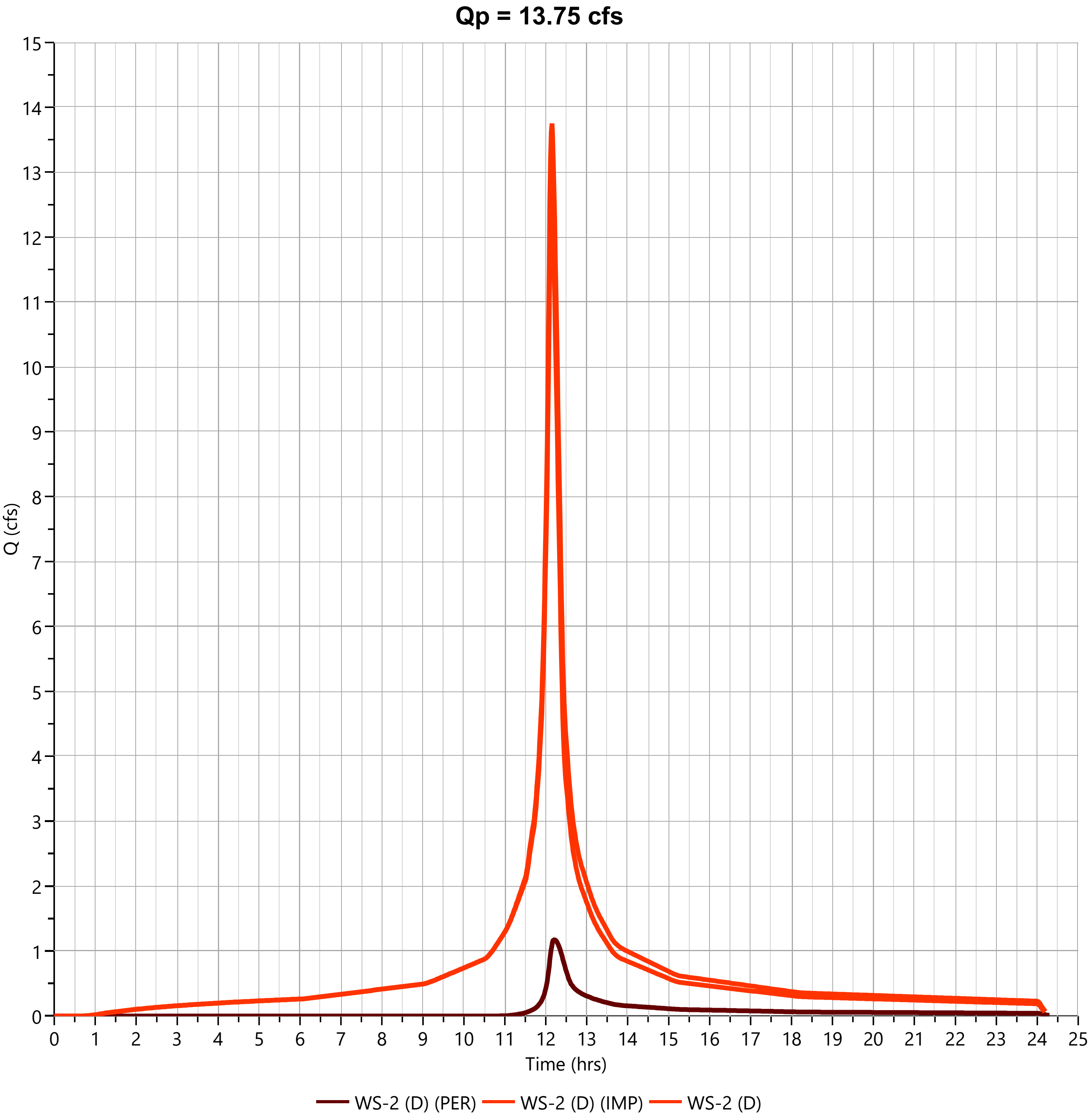
Hydrograph Type	= NRCS Runoff	Peak Flow	= 12.66 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Runoff Volume	= 58,103 cuft
Drainage Area	= 3.18 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 8.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (D)

Hyd. No. 11

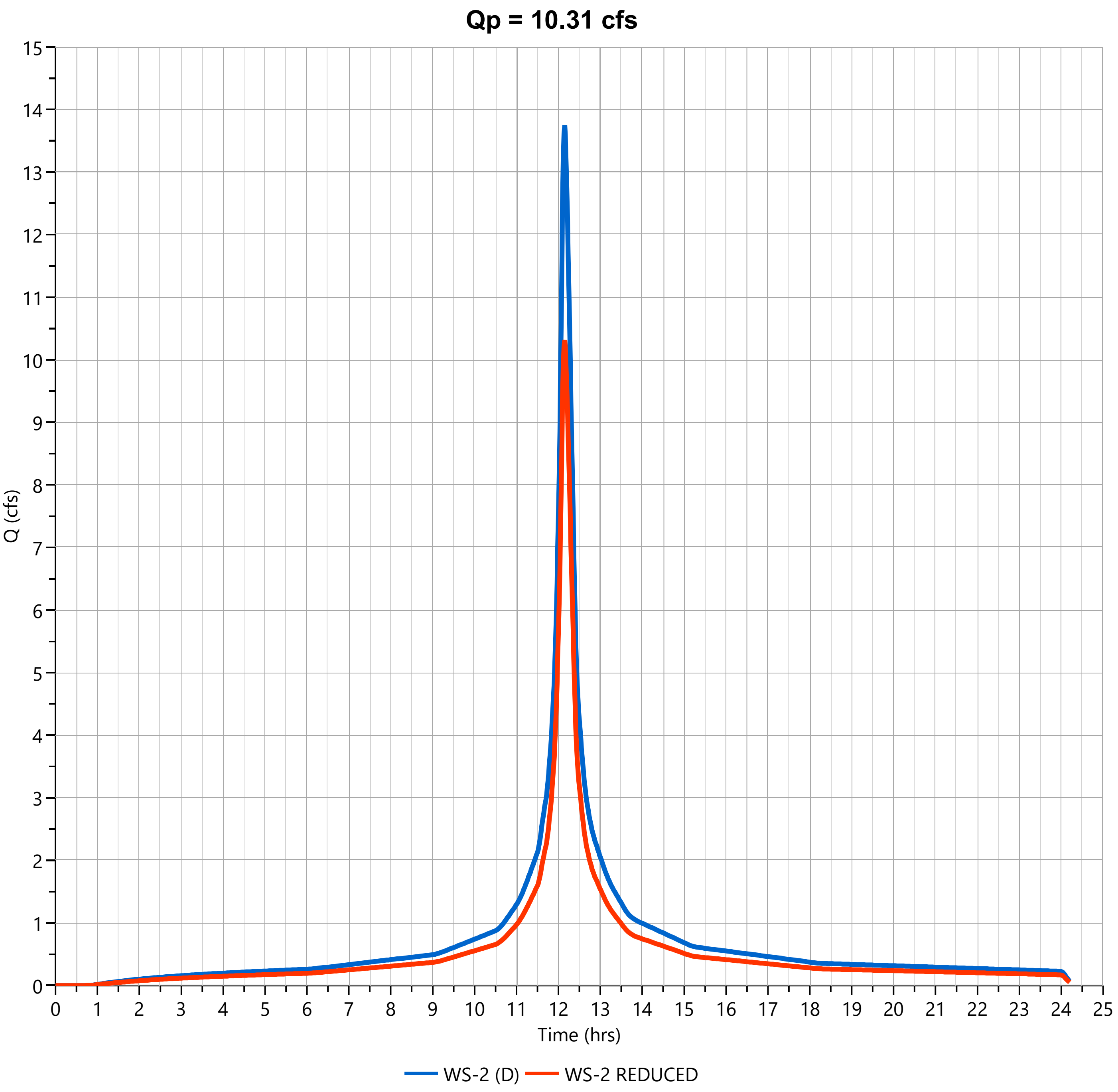
Hydrograph Type	= Junction	Peak Flow	= 13.75 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 64,116 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 4.28 ac



WS-2 REDUCED

Hyd. No. 12

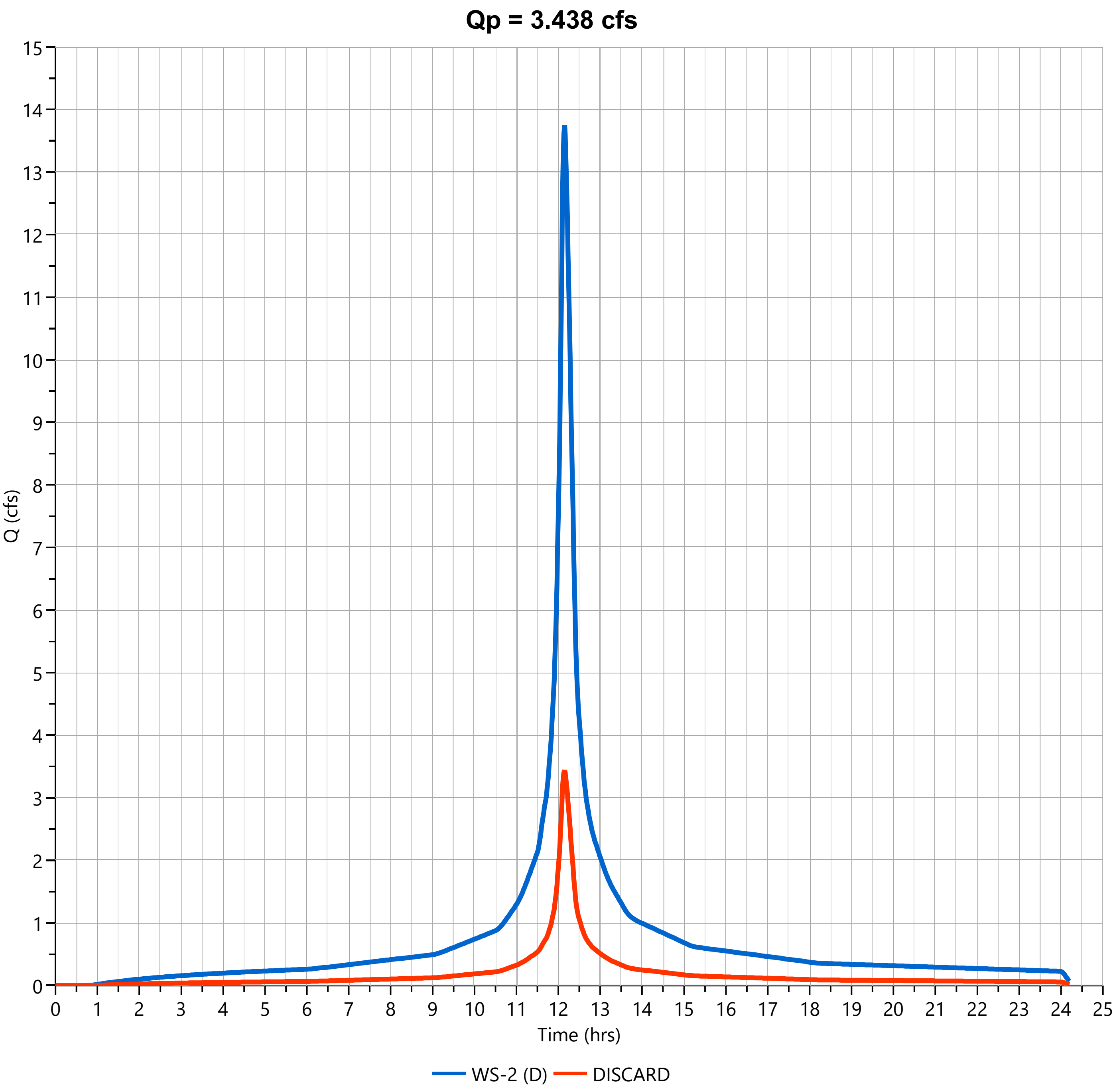
Hydrograph Type	= Diversion	Peak Flow	= 10.31 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 48,087 cuft
Inflow Hydrograph	= 11 - WS-2 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 13 - DISCARD	Flow Ratio	= 0.75



DISCARD

Hyd. No. 13

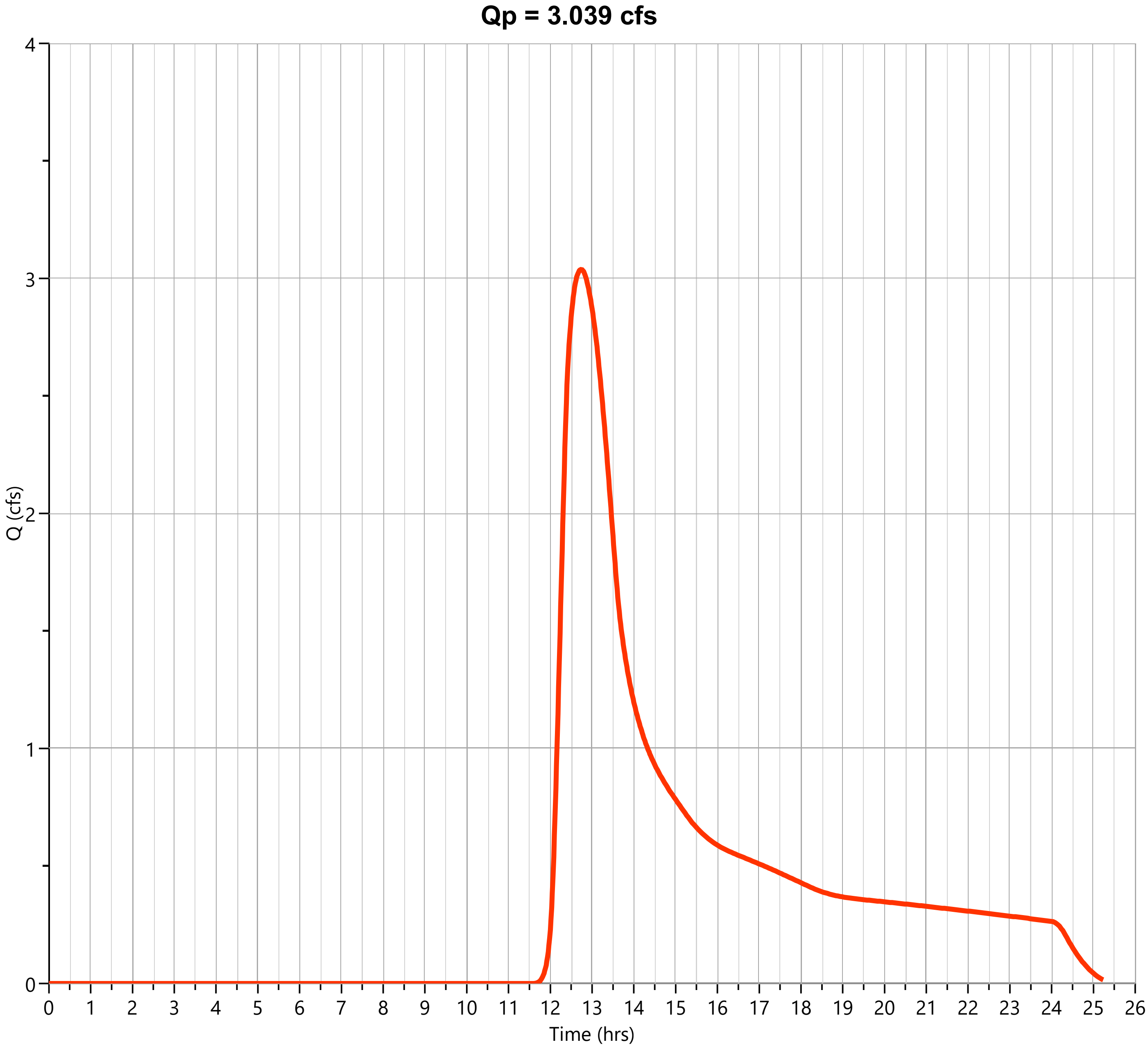
Hydrograph Type	= Diversion	Peak Flow	= 3.438 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 16,029 cuft
Inflow Hydrograph	= 11 - WS-2 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 12 - WS-2 REDUCED	Flow Ratio	= 0.75



WS-2 (U) (PER)

Hyd. No. 14

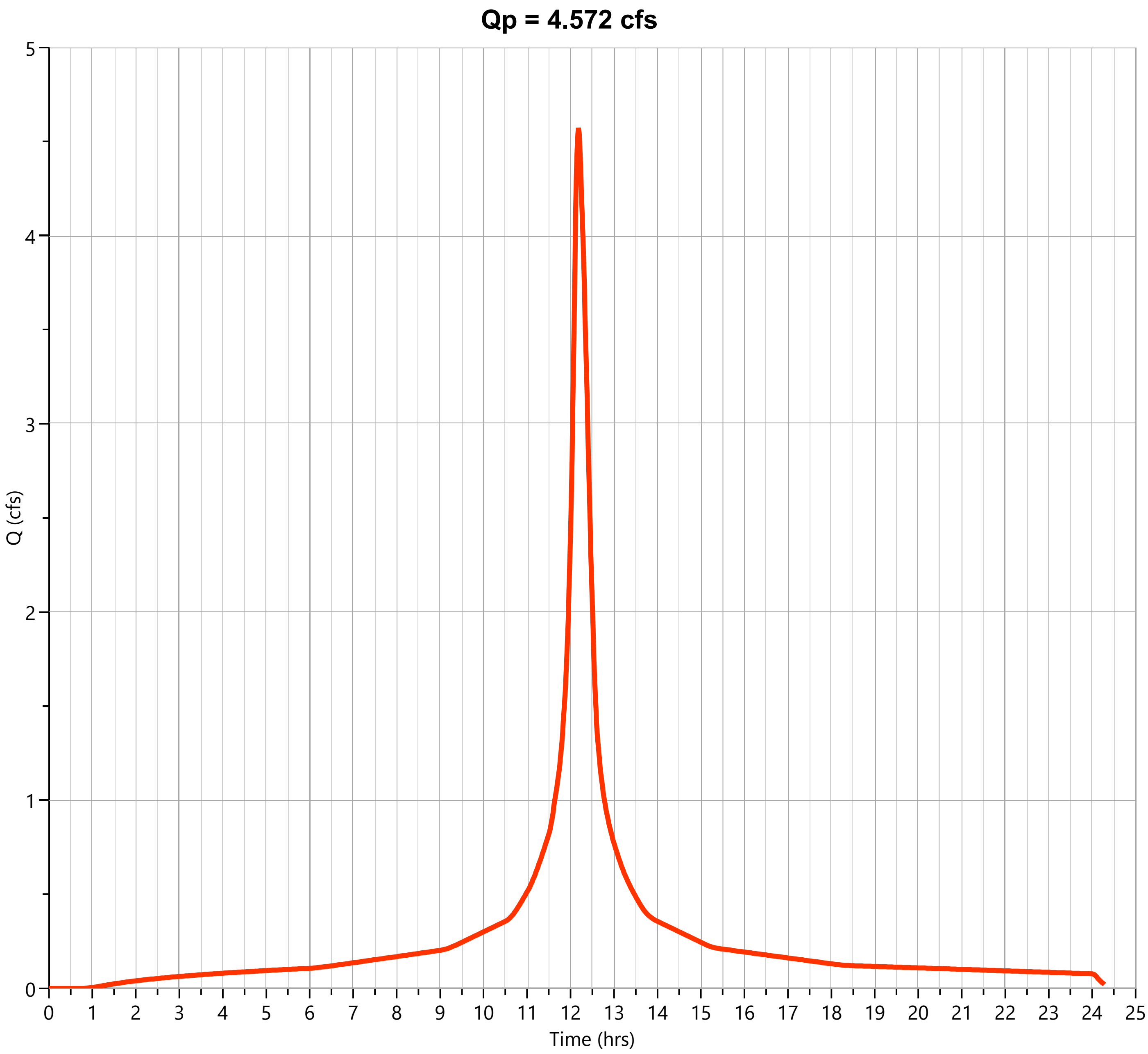
Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.039 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.73 hrs
Time Interval	= 1 min	Runoff Volume	= 32,547 cuft
Drainage Area	= 8.81 ac	Curve Number	= 54.00
Tc Method	= User	Time of Conc. (Tc)	= 35.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (U) (IMP)

Hyd. No. 15

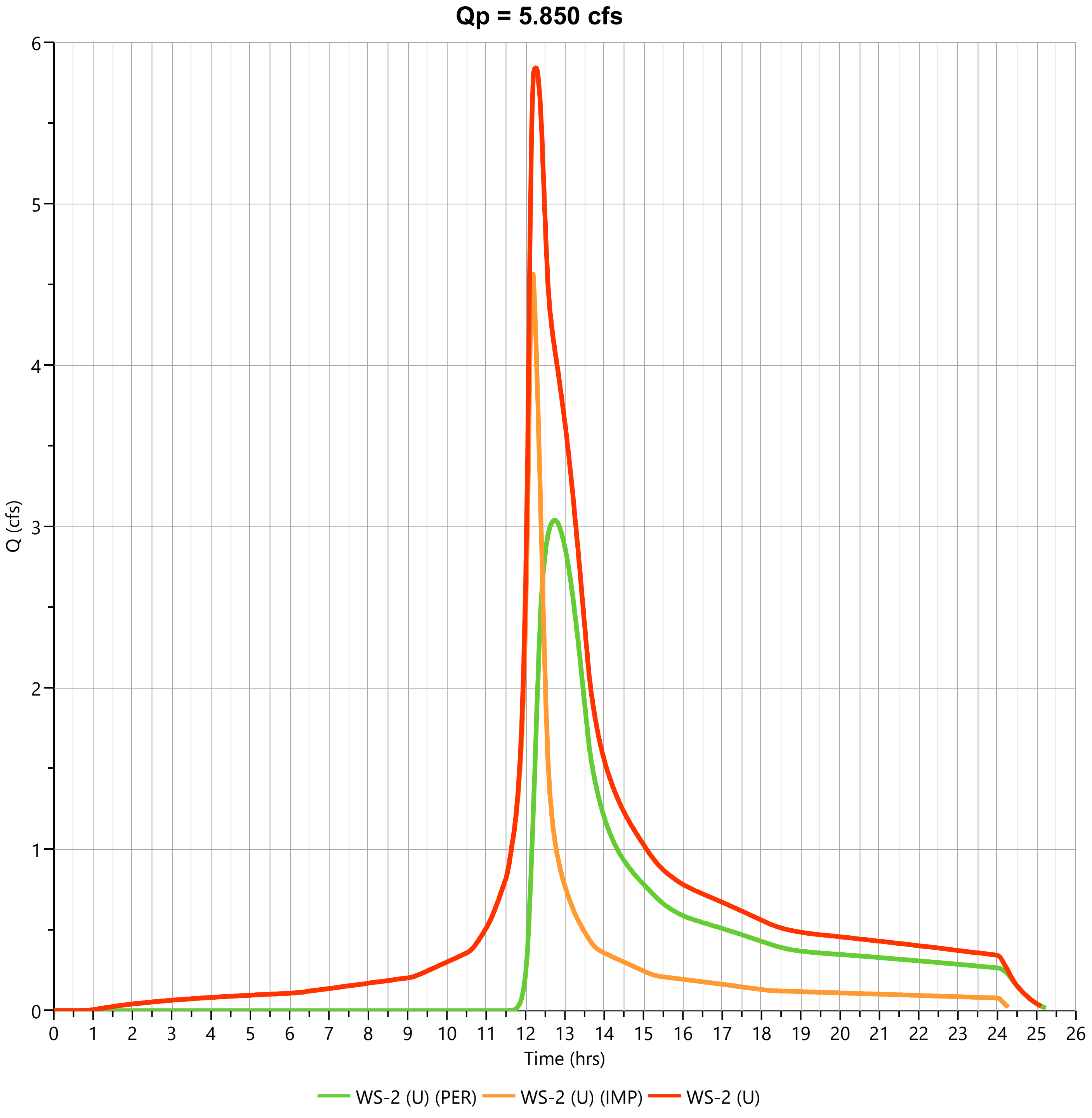
Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.572 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 24,150 cuft
Drainage Area	= 1.33 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (U)

Hyd. No. 16

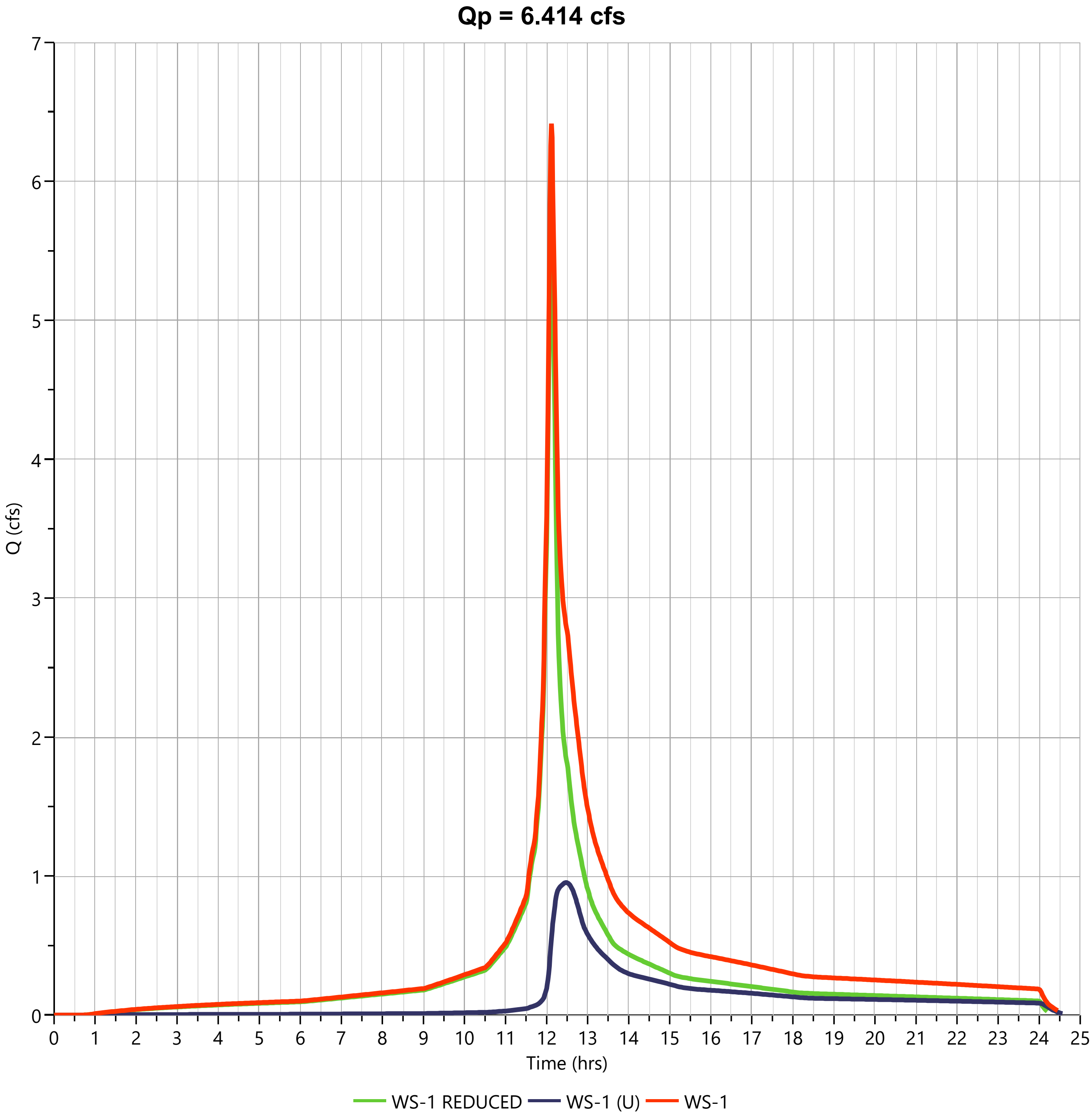
Hydrograph Type	= Junction	Peak Flow	= 5.850 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.25 hrs
Time Interval	= 1 min	Hydrograph Volume	= 56,697 cuft
Inflow Hydrographs	= 14, 15	Total Contrib. Area	= 10.14 ac



WS-1

Hyd. No. 17

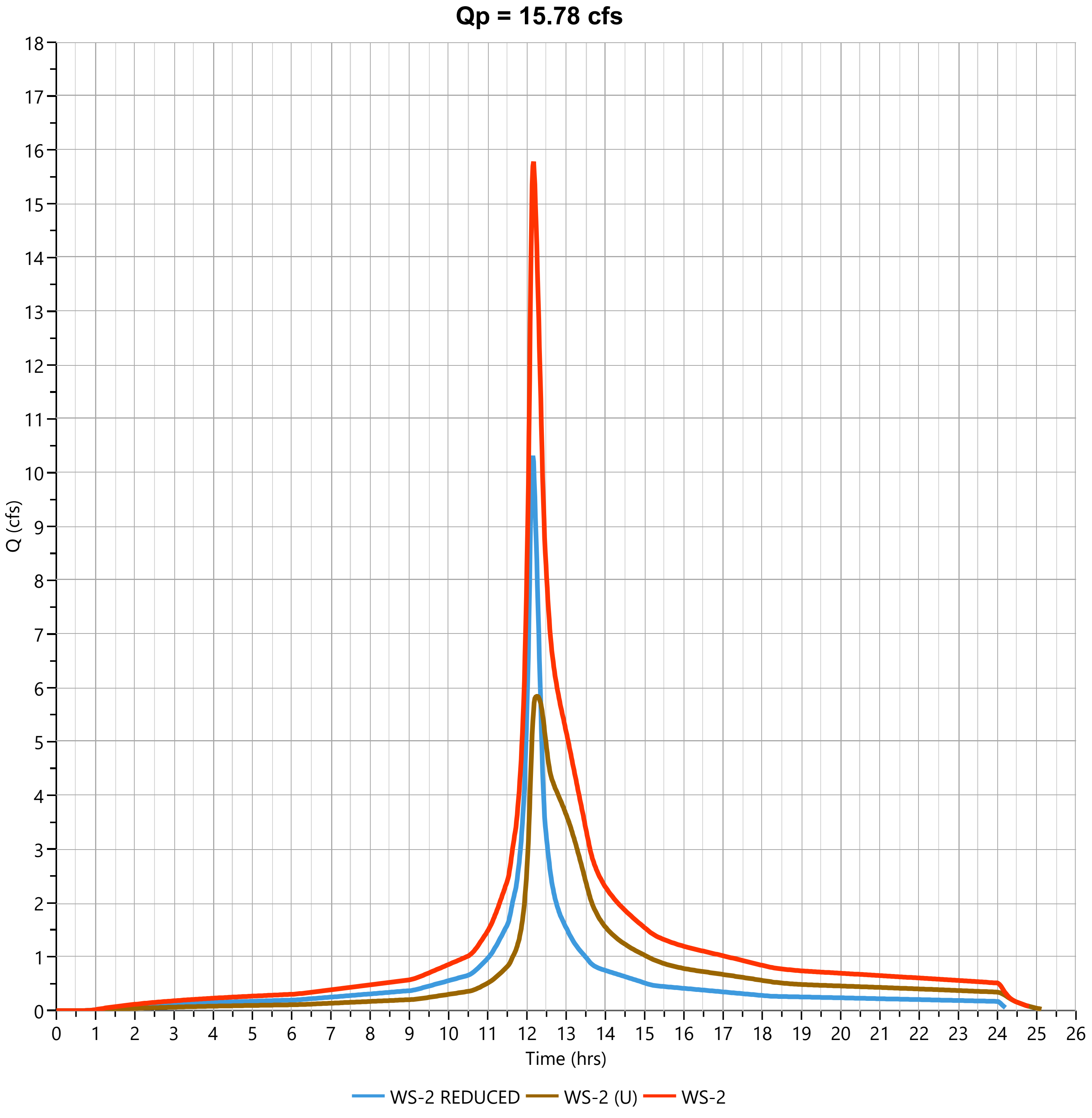
Hydrograph Type	= Junction	Peak Flow	= 6.414 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 35,792 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



WS-2

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 15.78 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 104,784 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



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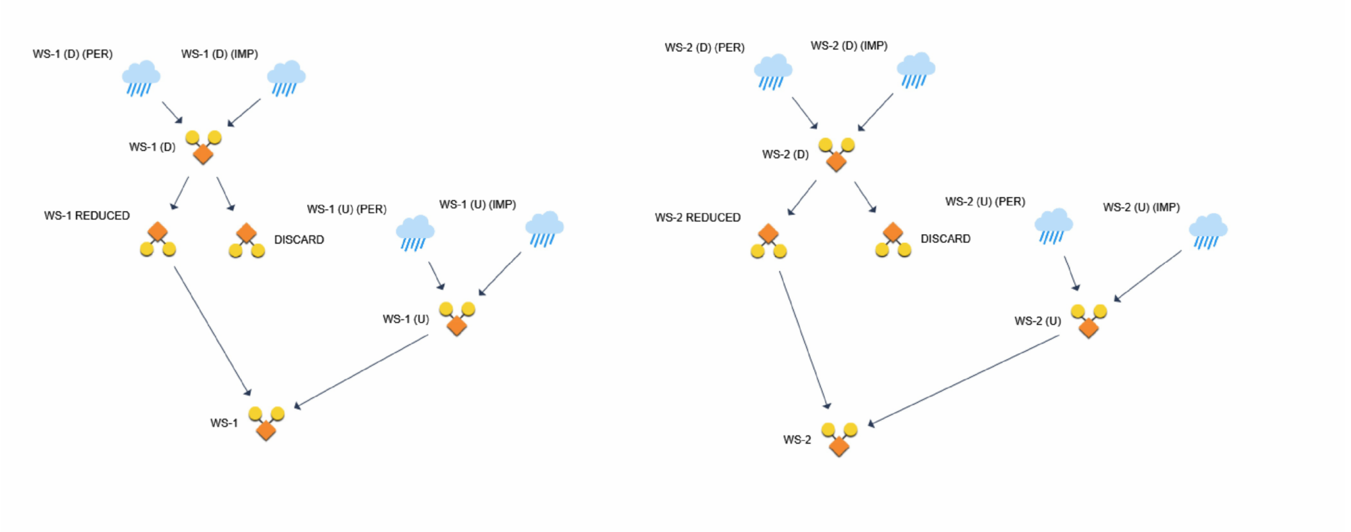

WS-1 (D) (PER)
WS-1 (D) (IMP)
WS-1 (D)
WS-1 REDUCED
DISCARD
WS-1 (U) (PER)
WS-1 (U) (IMP)
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WS-2 (D)
WS-2 REDUCED
DISCARD
WS-2 (U) (PER)
WS-2 (U) (IMP)
WS-2 (U)
WS-2

Hydrograph by Return Period

Hydrology Studio v 3.0.0.44

File: 102054601 - Current Existing.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	WS-1 (D) (PER)								3.032
2	NRCS Runoff	WS-1 (D) (IMP)								12.54
3	Junction	WS-1 (D)								14.56
4	Diversion1	WS-1 REDUCED								11.65
5	Diversion2	DISCARD								2.913
6	NRCS Runoff	WS-1 (U) (PER)								5.234
7	NRCS Runoff	WS-1 (U) (IMP)								0.515
8	Junction	WS-1 (U)								5.482
9	NRCS Runoff	WS-2 (D) (PER)								3.600
10	NRCS Runoff	WS-2 (D) (IMP)								21.84
11	Junction	WS-2 (D)								25.26
12	Diversion1	WS-2 REDUCED								20.21
13	Diversion2	DISCARD								5.051
14	NRCS Runoff	WS-2 (U) (PER)								12.07
15	NRCS Runoff	WS-2 (U) (IMP)								7.888
16	Junction	WS-2 (U)								16.65
17	Junction	WS-1								15.49
18	Junction	WS-2								34.39

Hydrograph 100-yr Summary

Hydrology Studio v 3.0.0.44

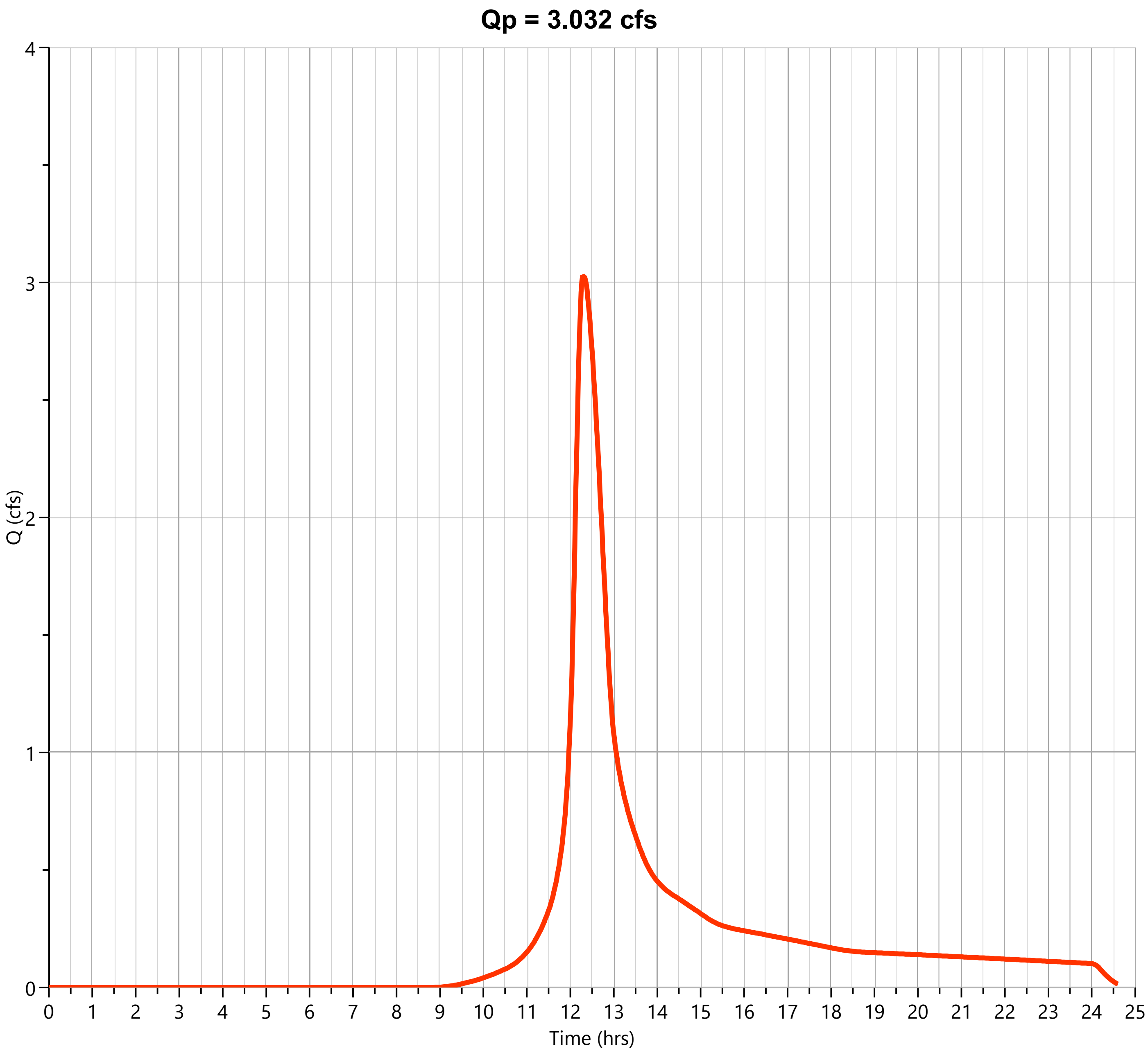
File: 102054601 - Current Existing.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	WS-1 (D) (PER)	3.032	12.30	18,904	----		
2	NRCS Runoff	WS-1 (D) (IMP)	12.54	12.12	49,054	----		
3	Junction	WS-1 (D)	14.56	12.12	67,959	1, 2		
4	Diversion1	WS-1 REDUCED	11.65	12.12	54,367	3		
5	Diversion2	DISCARD	2.913	12.12	13,592	3		
6	NRCS Runoff	WS-1 (U) (PER)	5.234	12.32	33,615	----		
7	NRCS Runoff	WS-1 (U) (IMP)	0.515	12.13	2,193	----		
8	Junction	WS-1 (U)	5.482	12.27	35,808	6, 7		
9	NRCS Runoff	WS-2 (D) (PER)	3.600	12.20	16,824	----		
10	NRCS Runoff	WS-2 (D) (IMP)	21.84	12.15	101,830	----		
11	Junction	WS-2 (D)	25.26	12.15	118,654	9, 10		
12	Diversion1	WS-2 REDUCED	20.21	12.15	94,923	11		
13	Diversion2	DISCARD	5.051	12.15	23,731	11		
14	NRCS Runoff	WS-2 (U) (PER)	12.07	12.57	106,158	----		
15	NRCS Runoff	WS-2 (U) (IMP)	7.888	12.18	42,325	----		
16	Junction	WS-2 (U)	16.65	12.37	148,482	14, 15		
17	Junction	WS-1	15.49	12.13	90,175	4, 8		
18	Junction	WS-2	34.39	12.17	243,405	12, 16		

WS-1 (D) (PER)

Hyd. No. 1

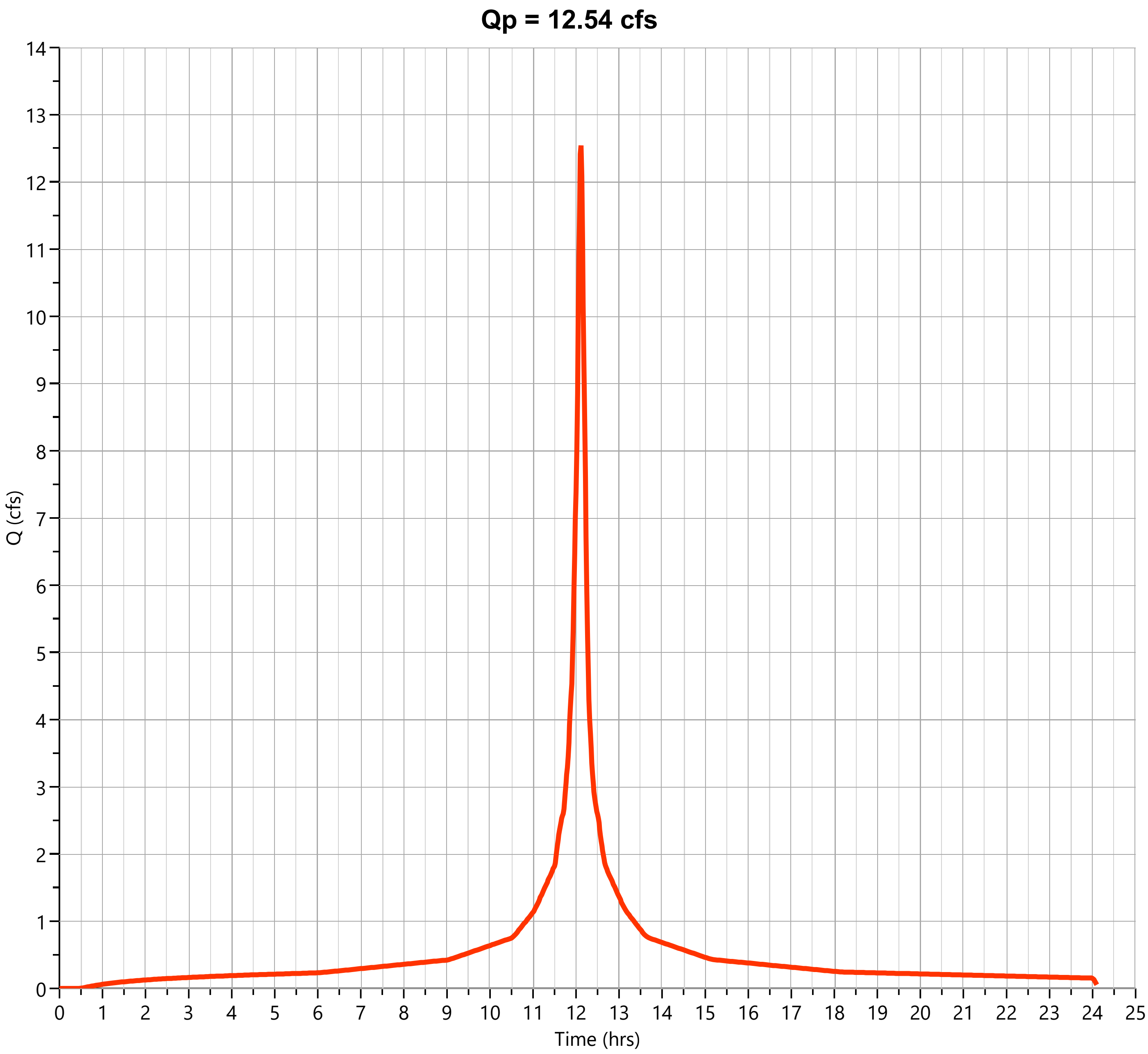
Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.032 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.30 hrs
Time Interval	= 1 min	Runoff Volume	= 18,904 cuft
Drainage Area	= 1.27 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 20.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (D) (IMP)

Hyd. No. 2

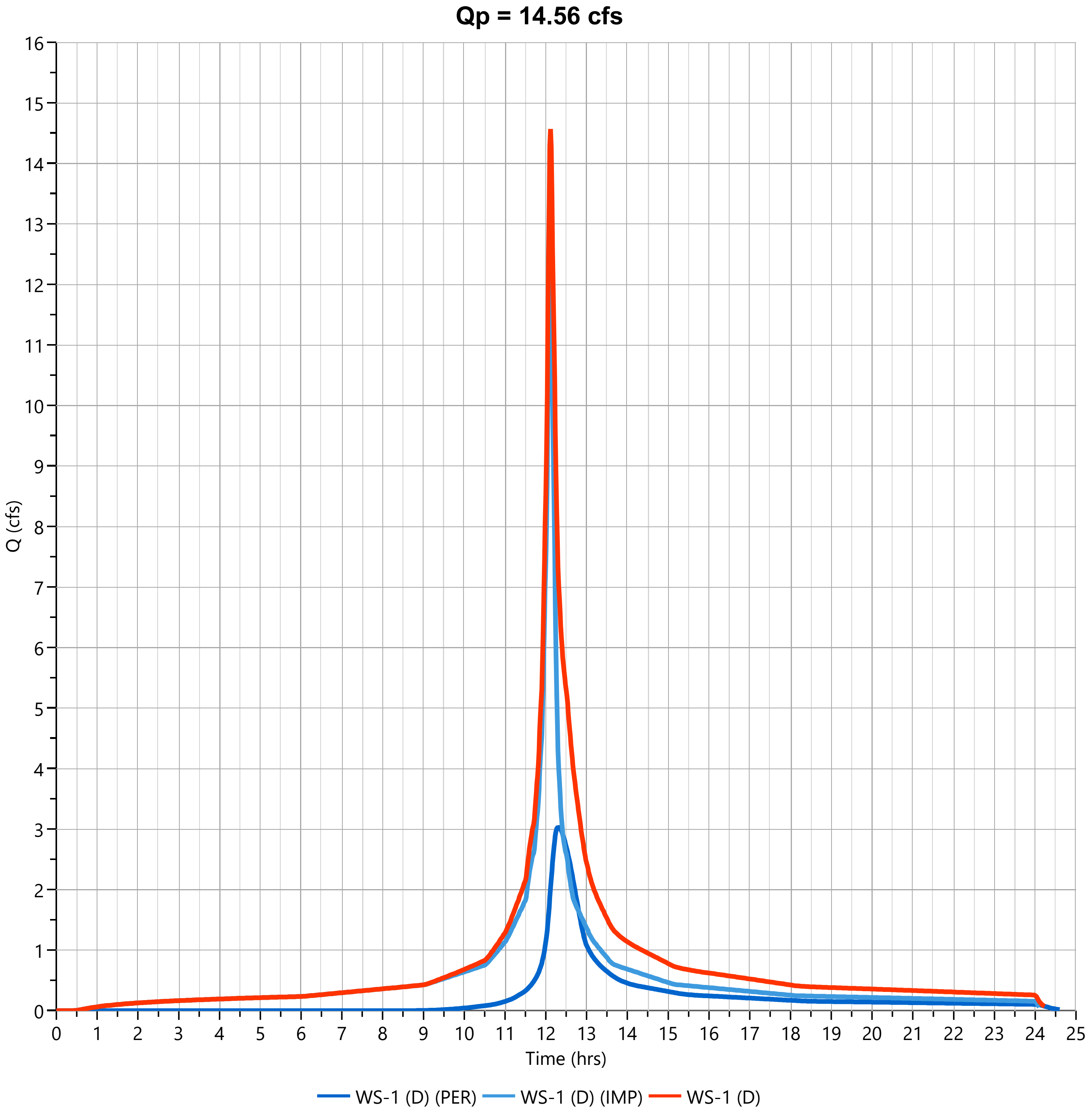
Hydrograph Type	= NRCS Runoff	Peak Flow	= 12.54 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Runoff Volume	= 49,054 cuft
Drainage Area	= 1.51 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 4.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (D)

Hyd. No. 3

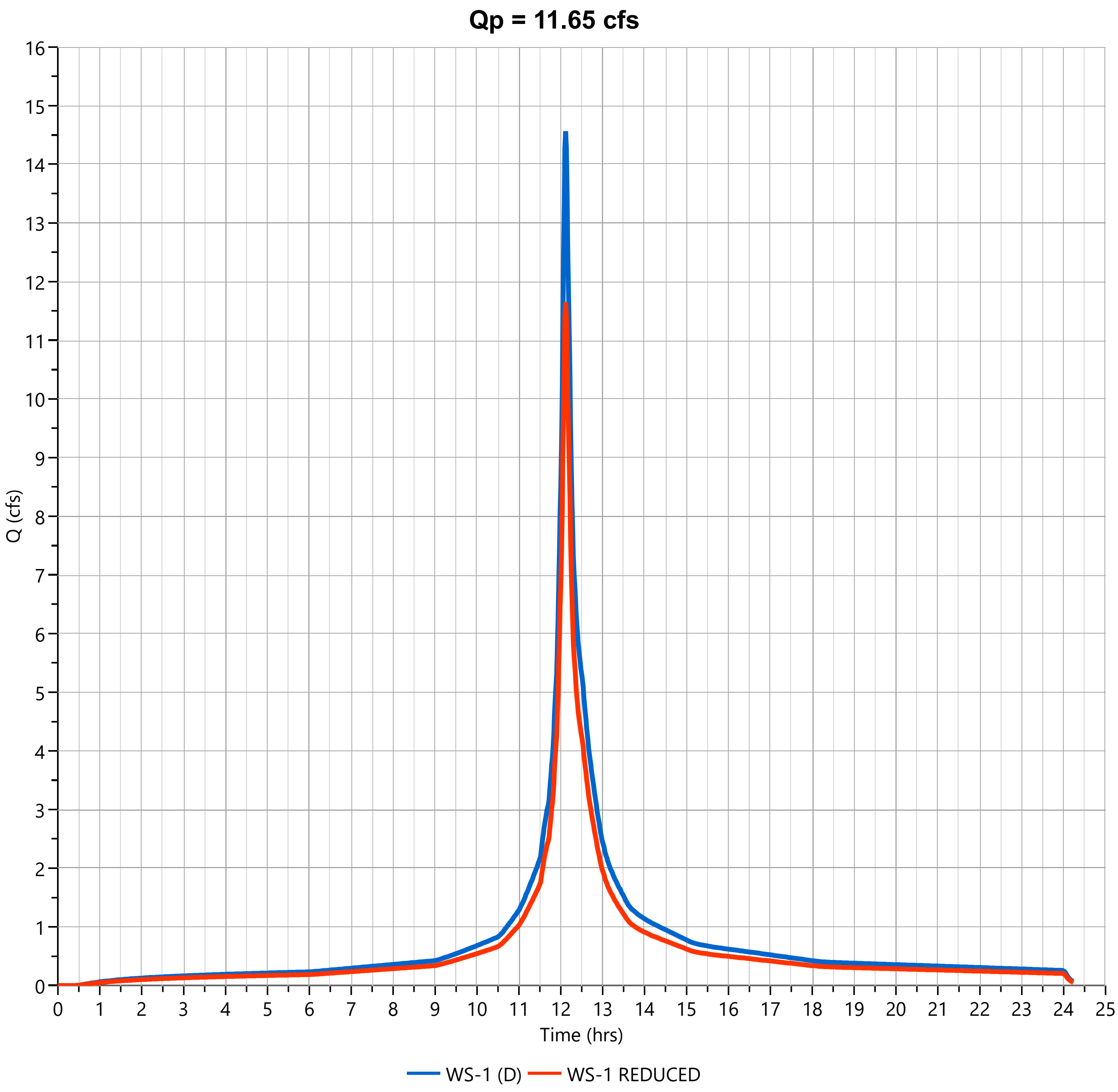
Hydrograph Type	= Junction	Peak Flow	= 14.56 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 67,959 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 2.78 ac



WS-1 REDUCED

Hyd. No. 4

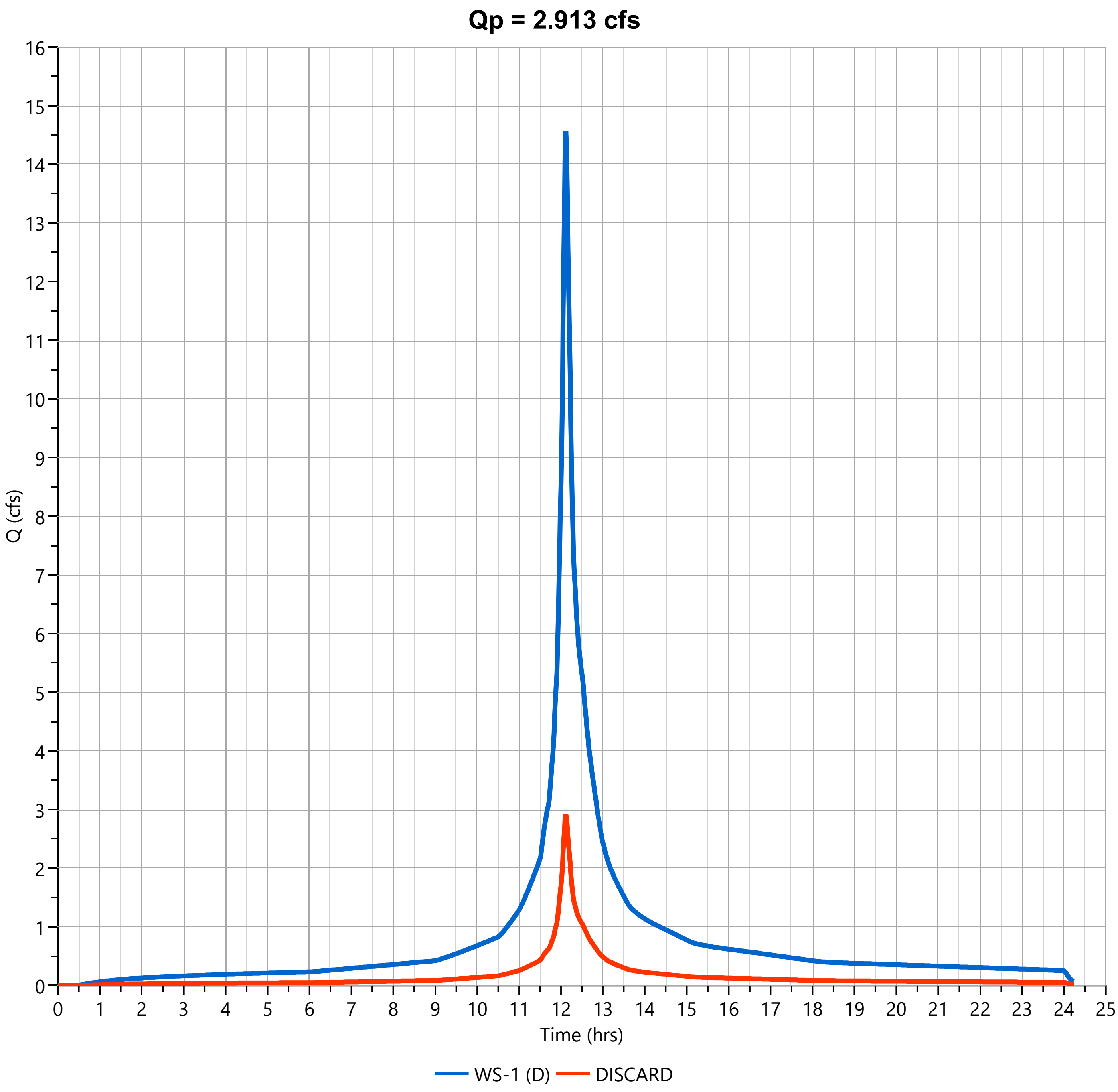
Hydrograph Type	= Diversion	Peak Flow	= 11.65 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 54,367 cuft
Inflow Hydrograph	= 3 - WS-1 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 5 - DISCARD	Flow Ratio	= 0.8



DISCARD

Hyd. No. 5

Hydrograph Type	= Diversion	Peak Flow	= 2.913 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 13,592 cuft
Inflow Hydrograph	= 3 - WS-1 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 4 - WS-1 REDUCED	Flow Ratio	= 0.8

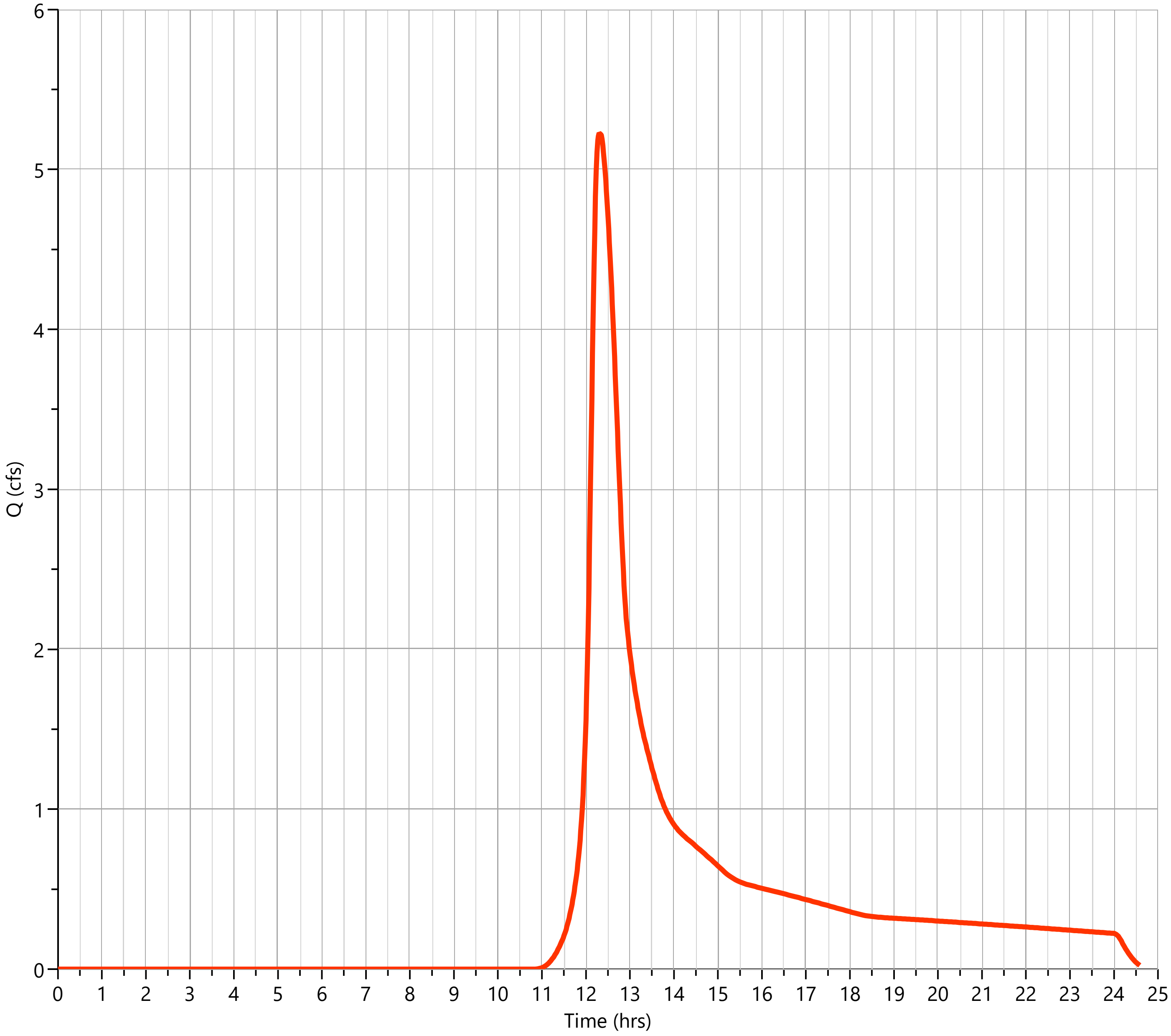


WS-1 (U) (PER)

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.234 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.32 hrs
Time Interval	= 1 min	Runoff Volume	= 33,615 cuft
Drainage Area	= 3.54 ac	Curve Number	= 48.00
Tc Method	= User	Time of Conc. (Tc)	= 18.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284

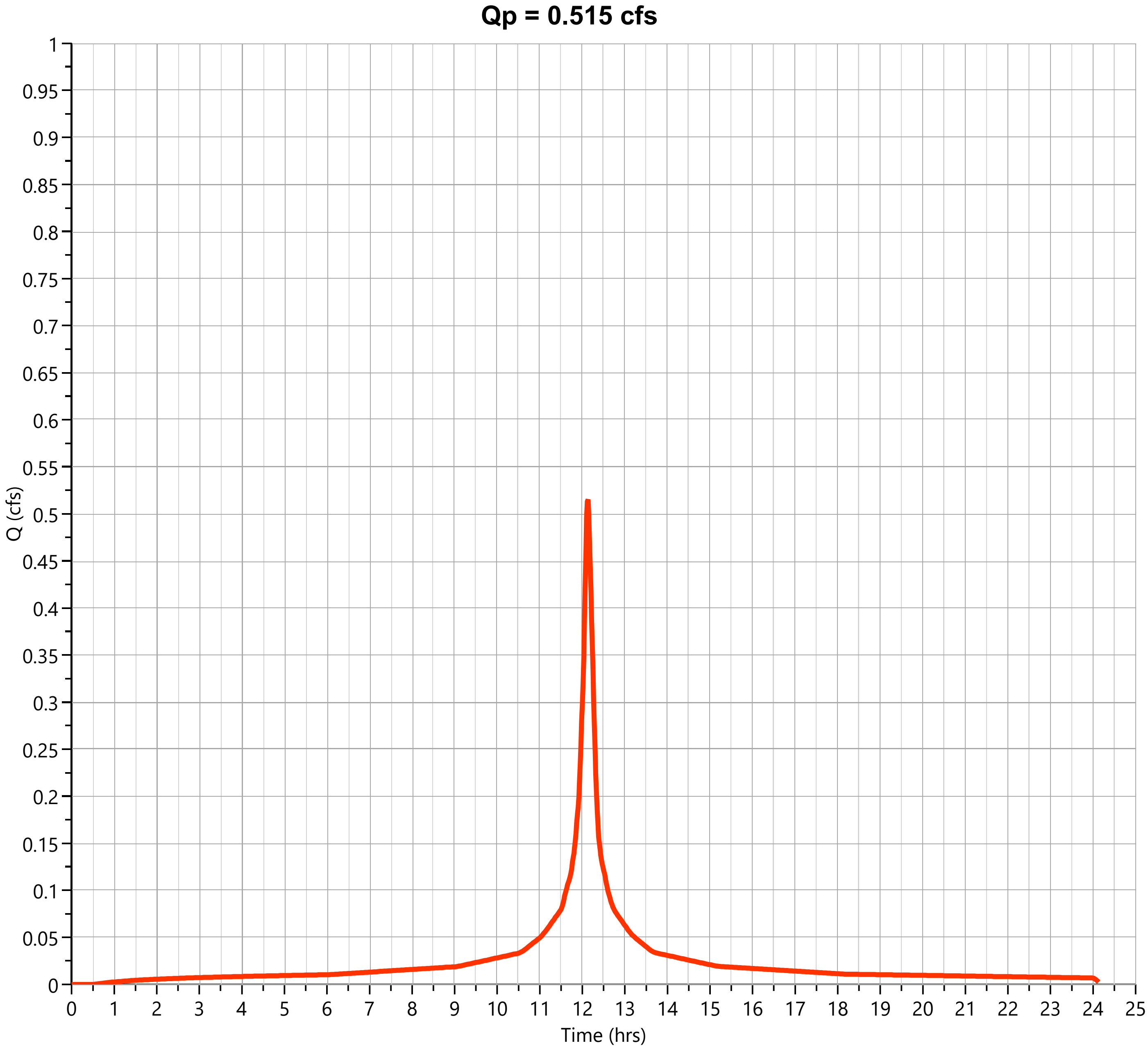
Qp = 5.234 cfs



WS-1 (U) (IMP)

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.515 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Runoff Volume	= 2,193 cuft
Drainage Area	= 0.07 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284

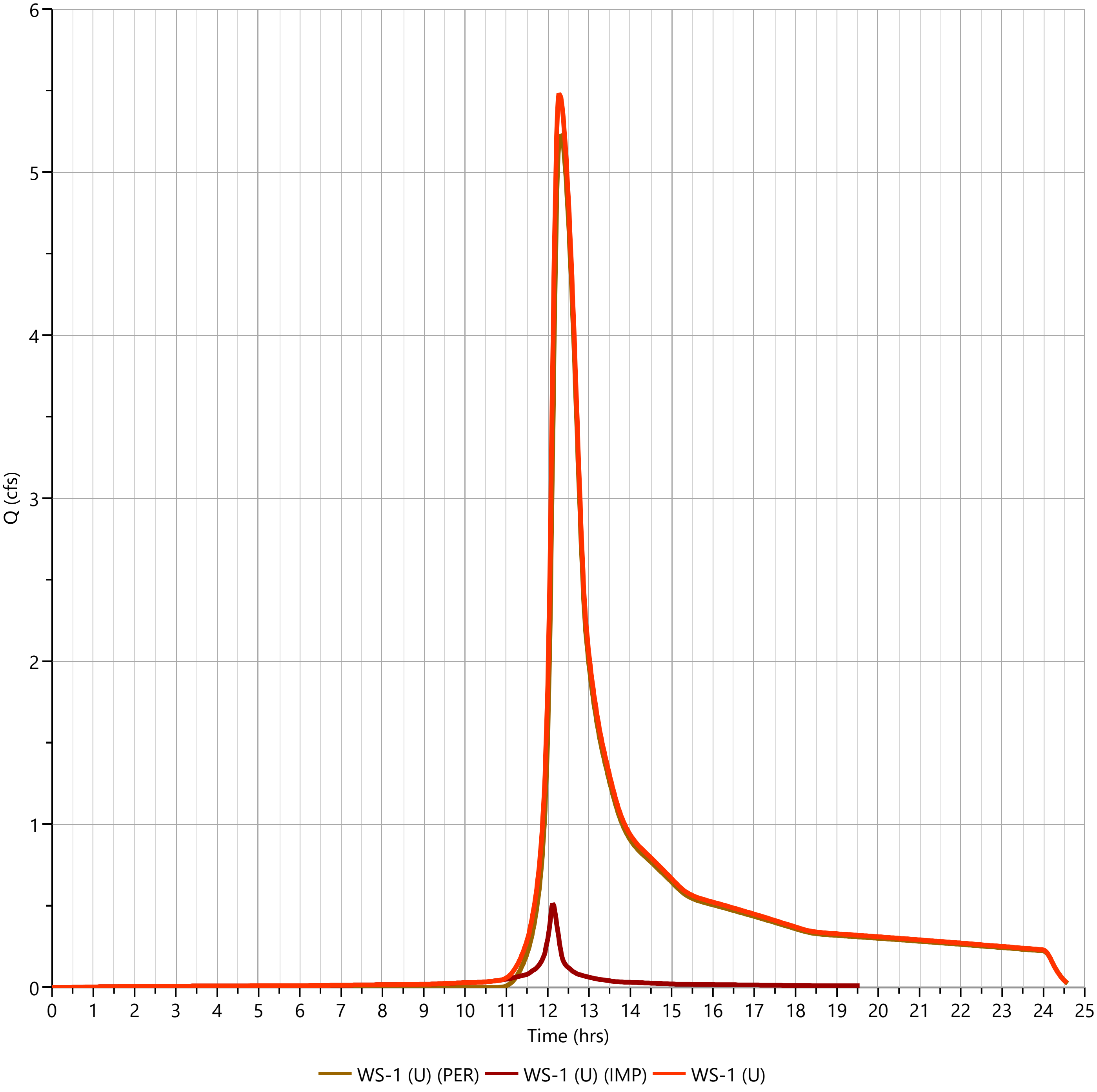


WS-1 (U)

Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 5.482 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.27 hrs
Time Interval	= 1 min	Hydrograph Volume	= 35,808 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 3.61 ac

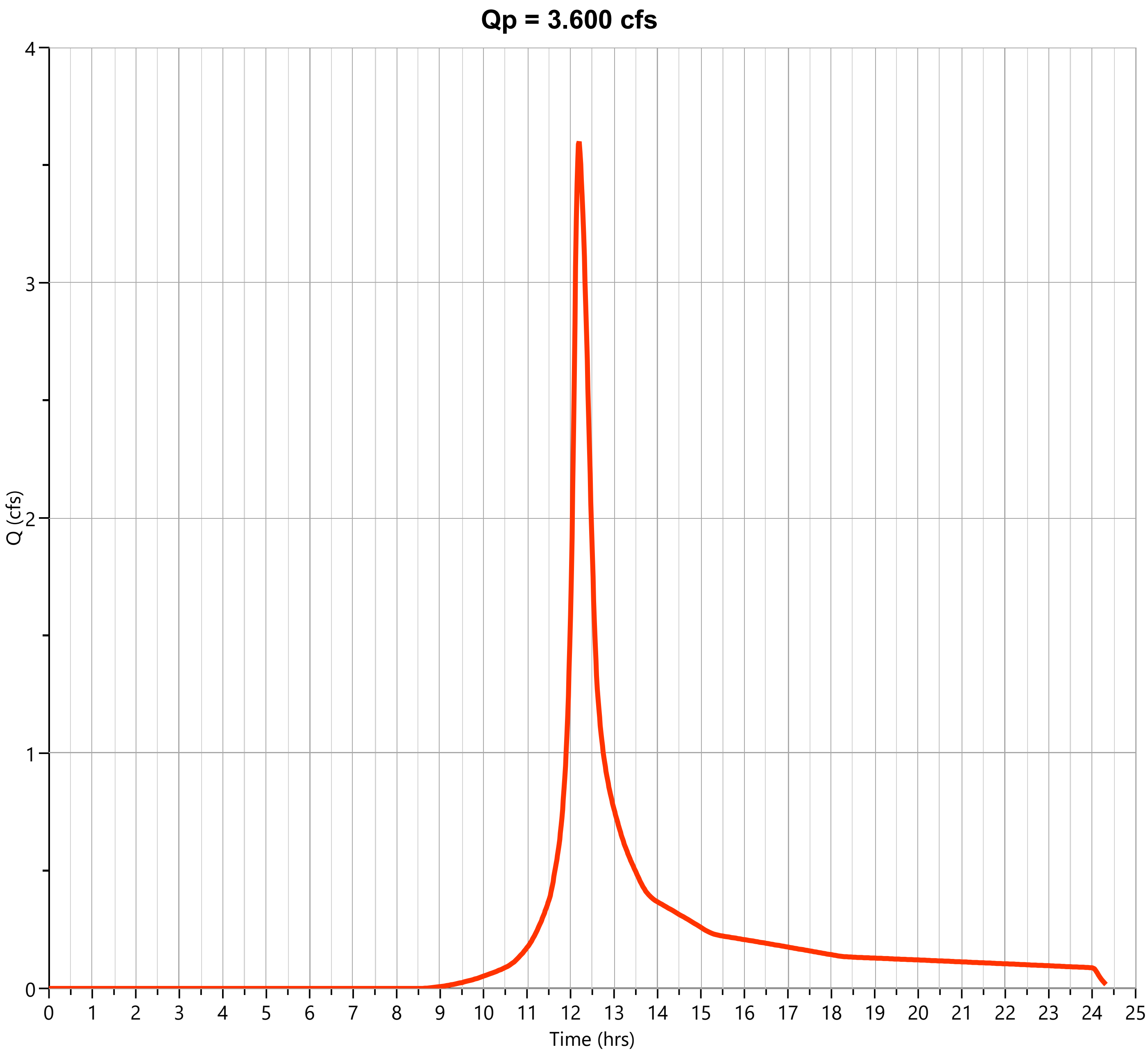
Qp = 5.482 cfs



WS-2 (D) (PER)

Hyd. No. 9

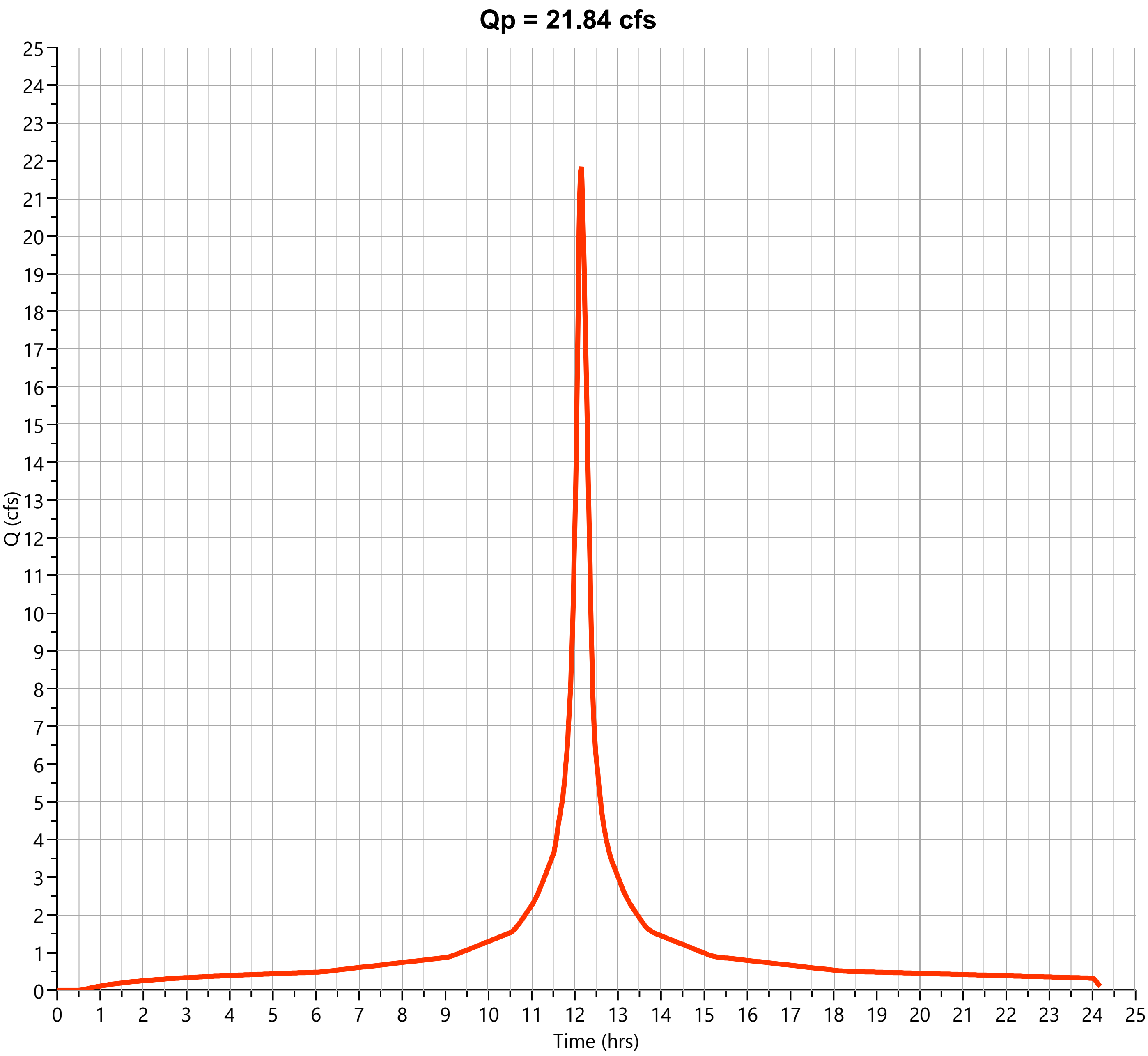
Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.600 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 1 min	Runoff Volume	= 16,824 cuft
Drainage Area	= 1.1 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (D) (IMP)

Hyd. No. 10

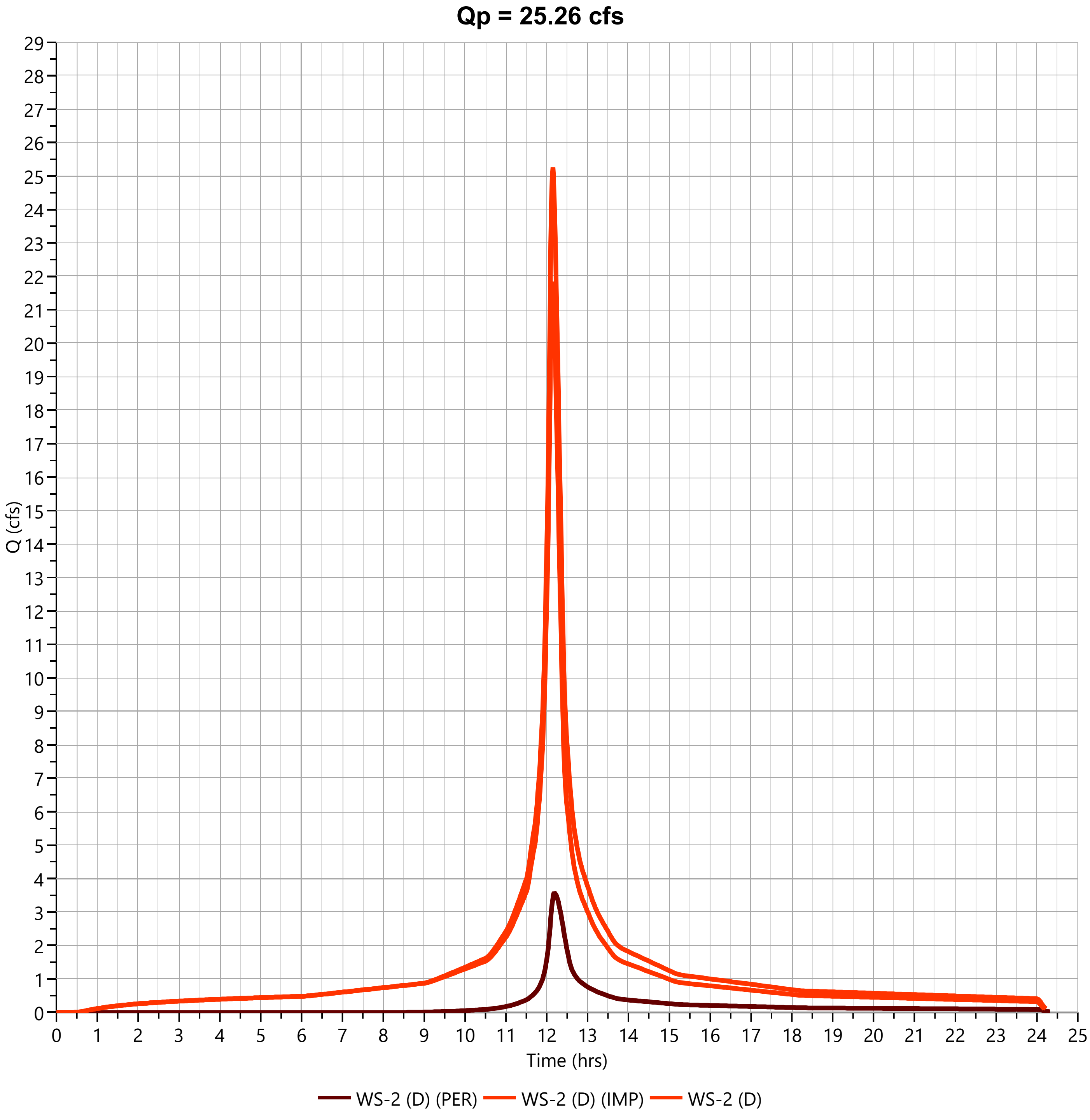
Hydrograph Type	= NRCS Runoff	Peak Flow	= 21.84 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Runoff Volume	= 101,830 cuft
Drainage Area	= 3.18 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 8.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (D)

Hyd. No. 11

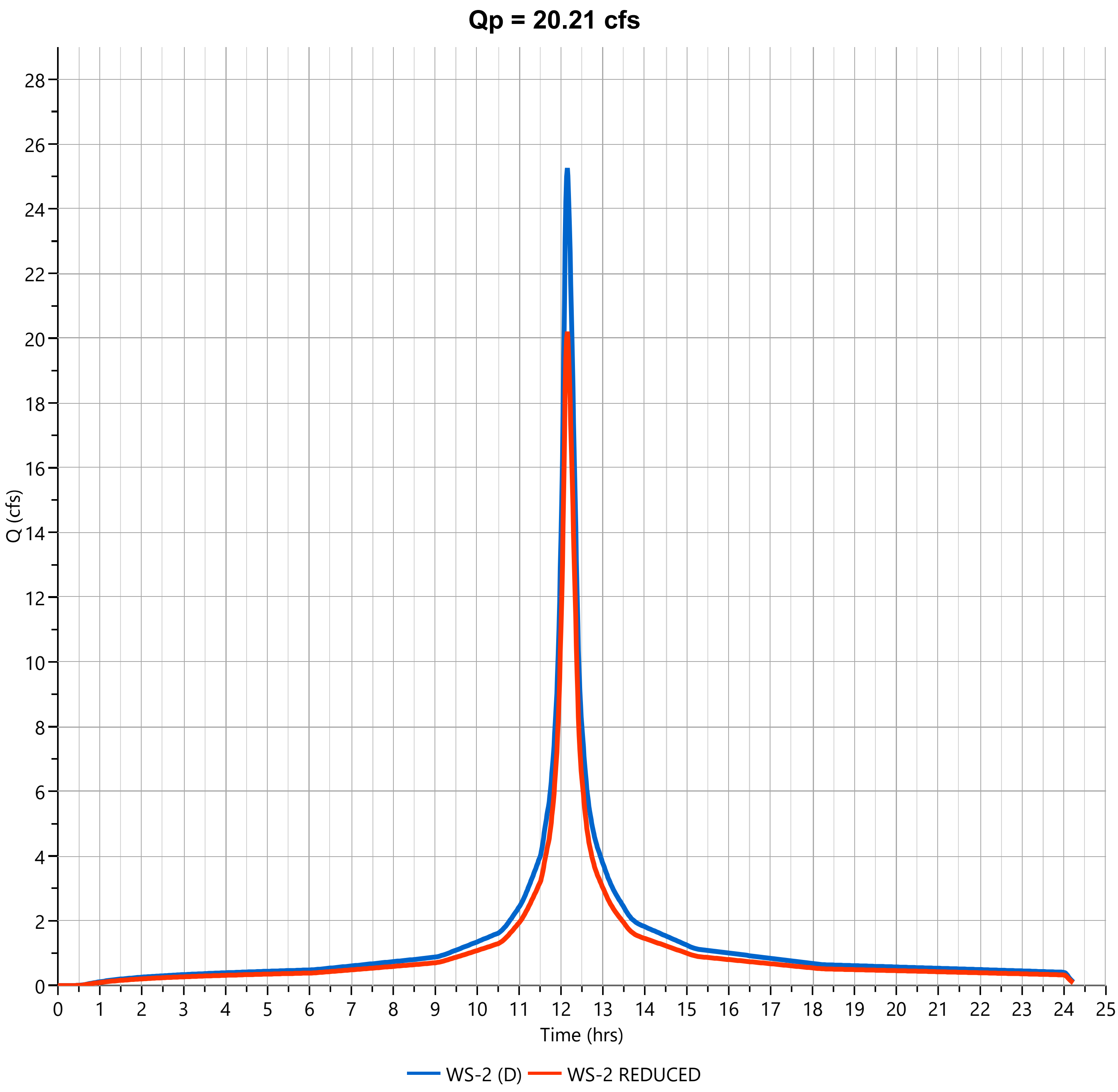
Hydrograph Type	= Junction	Peak Flow	= 25.26 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 118,654 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 4.28 ac



WS-2 REDUCED

Hyd. No. 12

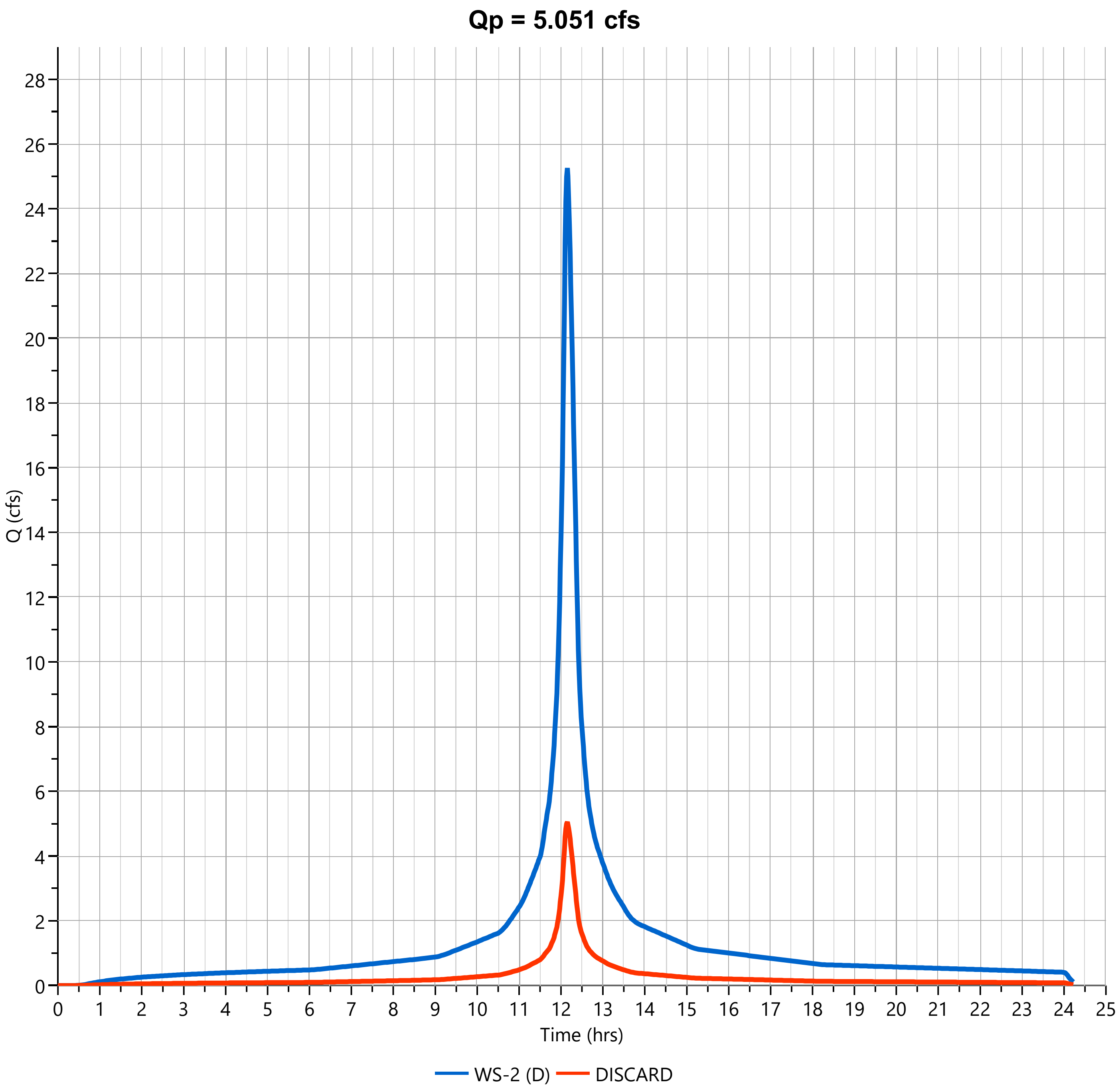
Hydrograph Type	= Diversion	Peak Flow	= 20.21 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 94,923 cuft
Inflow Hydrograph	= 11 - WS-2 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 13 - DISCARD	Flow Ratio	= 0.8



DISCARD

Hyd. No. 13

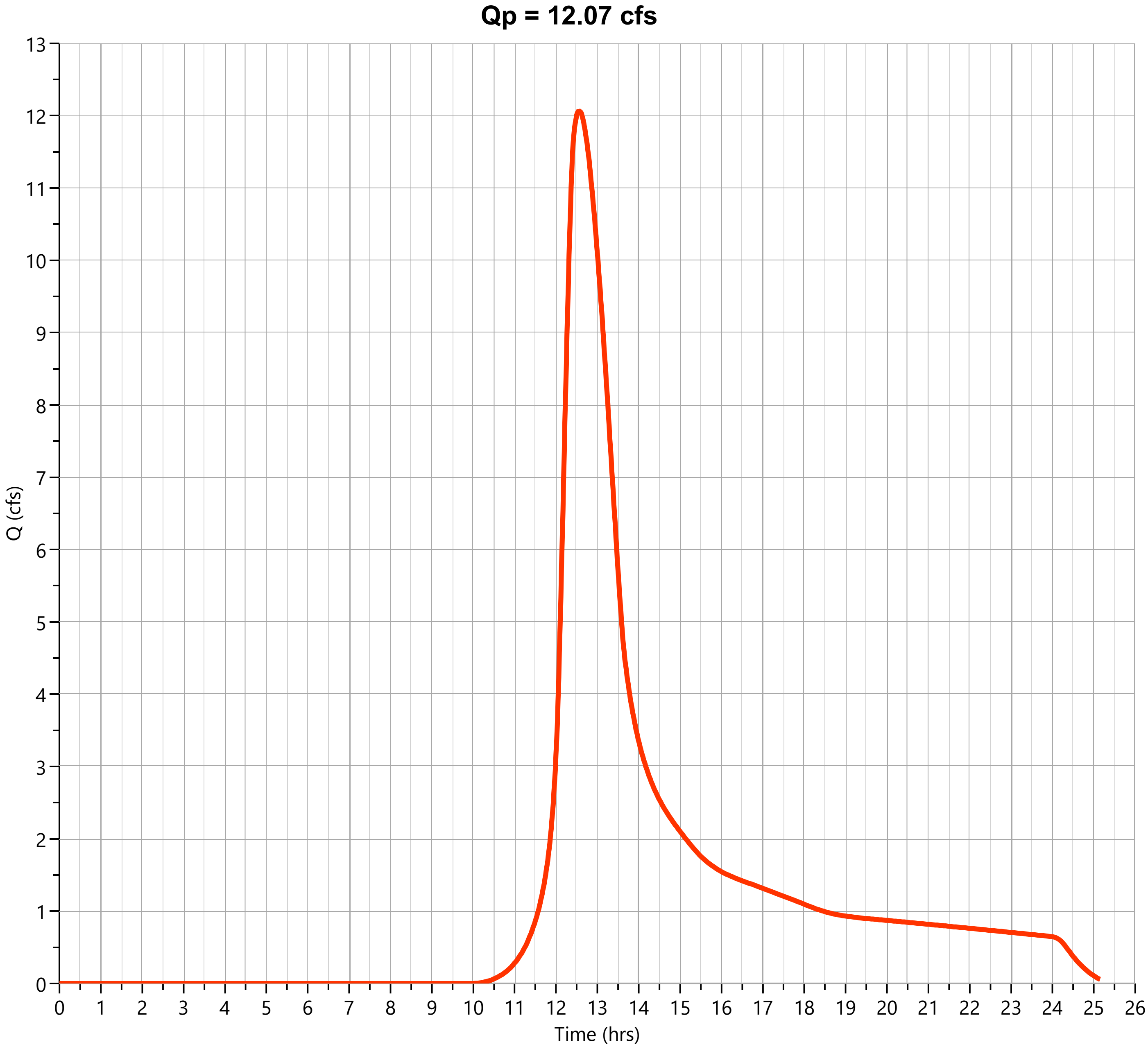
Hydrograph Type	= Diversion	Peak Flow	= 5.051 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 23,731 cuft
Inflow Hydrograph	= 11 - WS-2 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 12 - WS-2 REDUCED	Flow Ratio	= 0.8



WS-2 (U) (PER)

Hyd. No. 14

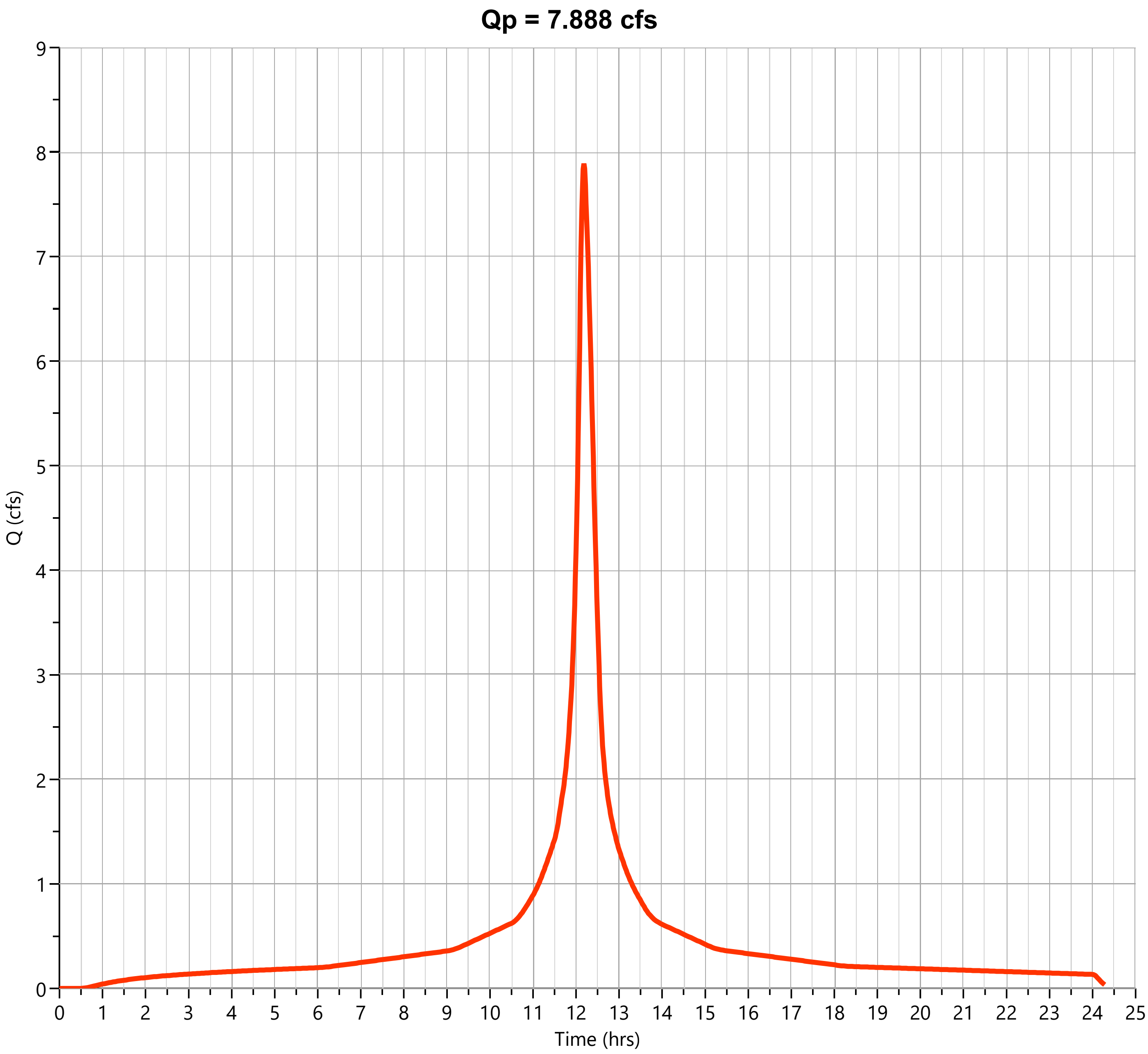
Hydrograph Type	= NRCS Runoff	Peak Flow	= 12.07 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.57 hrs
Time Interval	= 1 min	Runoff Volume	= 106,158 cuft
Drainage Area	= 8.81 ac	Curve Number	= 54.00
Tc Method	= User	Time of Conc. (Tc)	= 35.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (U) (IMP)

Hyd. No. 15

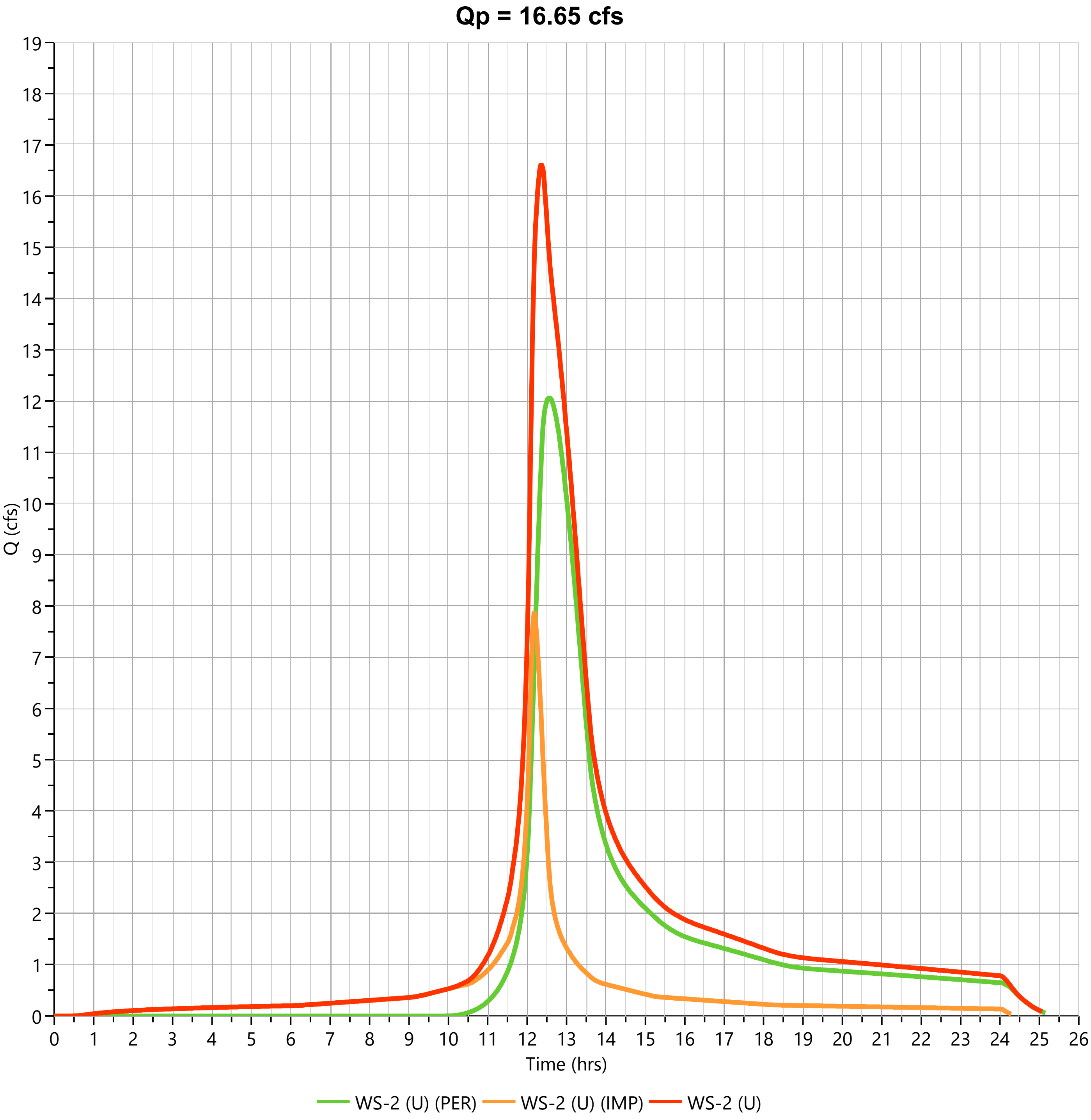
Hydrograph Type	= NRCS Runoff	Peak Flow	= 7.888 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 42,325 cuft
Drainage Area	= 1.33 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (U)

Hyd. No. 16

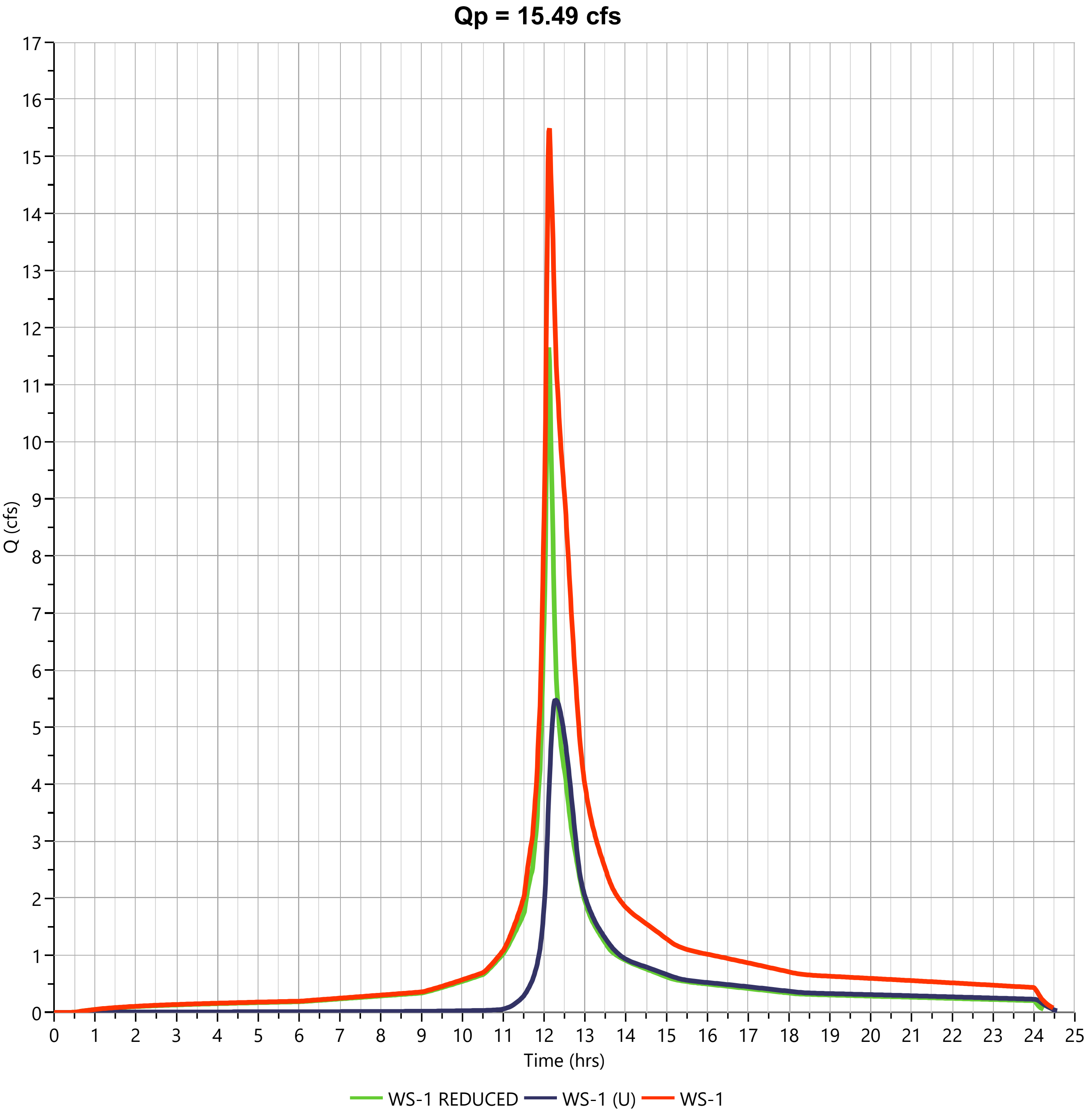
Hydrograph Type	= Junction	Peak Flow	= 16.65 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.37 hrs
Time Interval	= 1 min	Hydrograph Volume	= 148,482 cuft
Inflow Hydrographs	= 14, 15	Total Contrib. Area	= 10.14 ac



WS-1

Hyd. No. 17

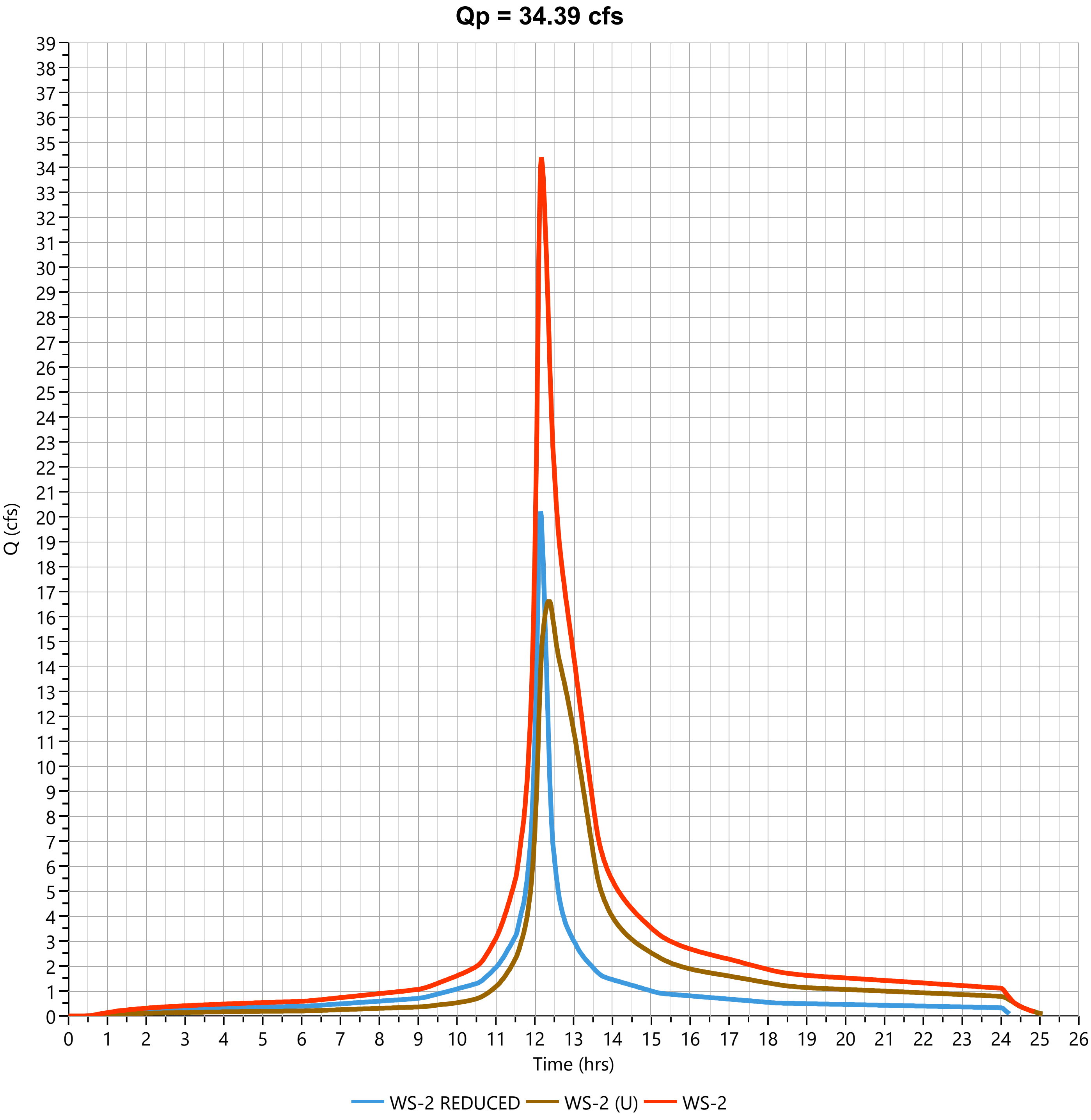
Hydrograph Type	= Junction	Peak Flow	= 15.49 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 90,175 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



WS-2

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 34.39 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 243,405 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



EXISTING RUNOFF HYDROGRAPHS "FUTURE" 2-, 10-, AND 100-YEAR STORMS

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Basin Model

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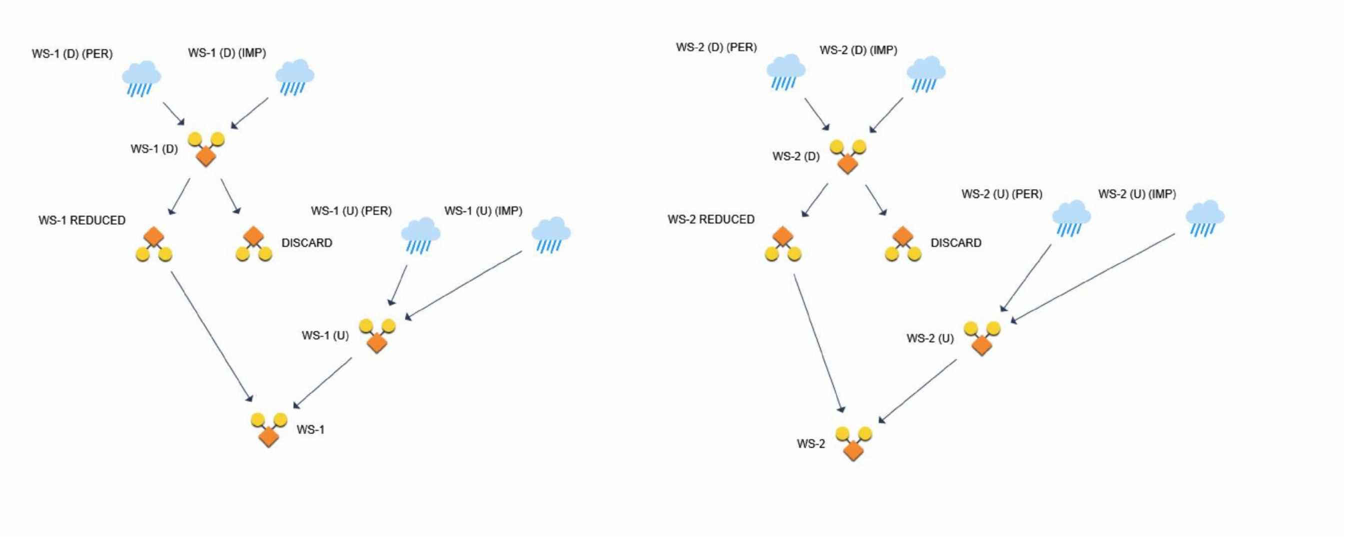
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WS-1 (D) (IMP)
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WS-1 (U) (PER)
WS-1 (U) (IMP)
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WS-2 (D)
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DISCARD
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WS-2 (U) (IMP)
WS-2 (U)
WS-2

Hydrograph by Return Period

Hydrology Studio v 3.0.0.44

File: 102054601 - Future Existing.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	WS-1 (D) (PER)		0.438						
2	NRCS Runoff	WS-1 (D) (IMP)		5.545						
3	Junction	WS-1 (D)		5.738						
4	Diversion1	WS-1 REDUCED		2.869						
5	Diversion2	DISCARD		2.869						
6	NRCS Runoff	WS-1 (U) (PER)		0.204						
7	NRCS Runoff	WS-1 (U) (IMP)		0.228						
8	Junction	WS-1 (U)		0.238						
9	NRCS Runoff	WS-2 (D) (PER)		0.557						
10	NRCS Runoff	WS-2 (D) (IMP)		9.651						
11	Junction	WS-2 (D)		10.14						
12	Diversion1	WS-2 REDUCED		5.070						
13	Diversion2	DISCARD		5.070						
14	NRCS Runoff	WS-2 (U) (PER)		1.162						
15	NRCS Runoff	WS-2 (U) (IMP)		3.485						
16	Junction	WS-2 (U)		3.746						
17	Junction	WS-1		3.101						
18	Junction	WS-2		8.682						

Hydrograph 2-yr Summary

Hydrology Studio v 3.0.0.44

File: 102054601 - Future Existing.hys

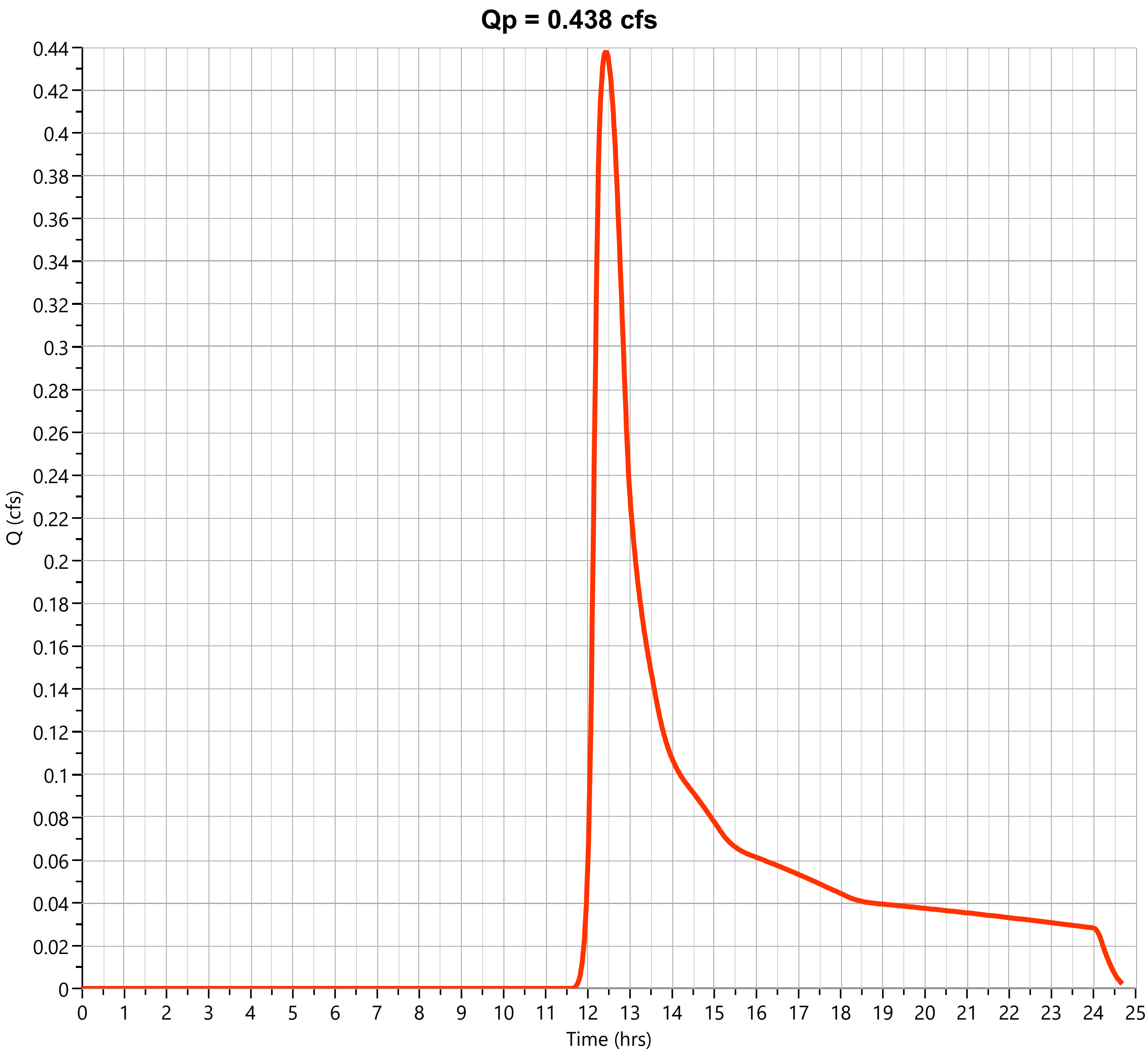
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	WS-1 (D) (PER)	0.438	12.43	3,512	----		
2	NRCS Runoff	WS-1 (D) (IMP)	5.545	12.12	21,116	----		
3	Junction	WS-1 (D)	5.738	12.12	24,628	1, 2		
4	Diversion1	WS-1 REDUCED	2.869	12.12	12,314	3		
5	Diversion2	DISCARD	2.869	12.12	12,314	3		
6	NRCS Runoff	WS-1 (U) (PER)	0.204	12.82	3,363	----		
7	NRCS Runoff	WS-1 (U) (IMP)	0.228	12.13	944	----		
8	Junction	WS-1 (U)	0.238	12.75	4,307	6, 7		
9	NRCS Runoff	WS-2 (D) (PER)	0.557	12.23	3,236	----		
10	NRCS Runoff	WS-2 (D) (IMP)	9.651	12.15	43,835	----		
11	Junction	WS-2 (D)	10.14	12.15	47,070	9, 10		
12	Diversion1	WS-2 REDUCED	5.070	12.15	23,535	11		
13	Diversion2	DISCARD	5.070	12.15	23,535	11		
14	NRCS Runoff	WS-2 (U) (PER)	1.162	12.92	15,447	----		
15	NRCS Runoff	WS-2 (U) (IMP)	3.485	12.18	18,219	----		
16	Junction	WS-2 (U)	3.746	12.20	33,667	14, 15		
17	Junction	WS-1	3.101	12.12	16,621	4, 8		
18	Junction	WS-2	8.682	12.17	57,202	12, 16		

WS-1 (D) (PER)

Hyd. No. 1

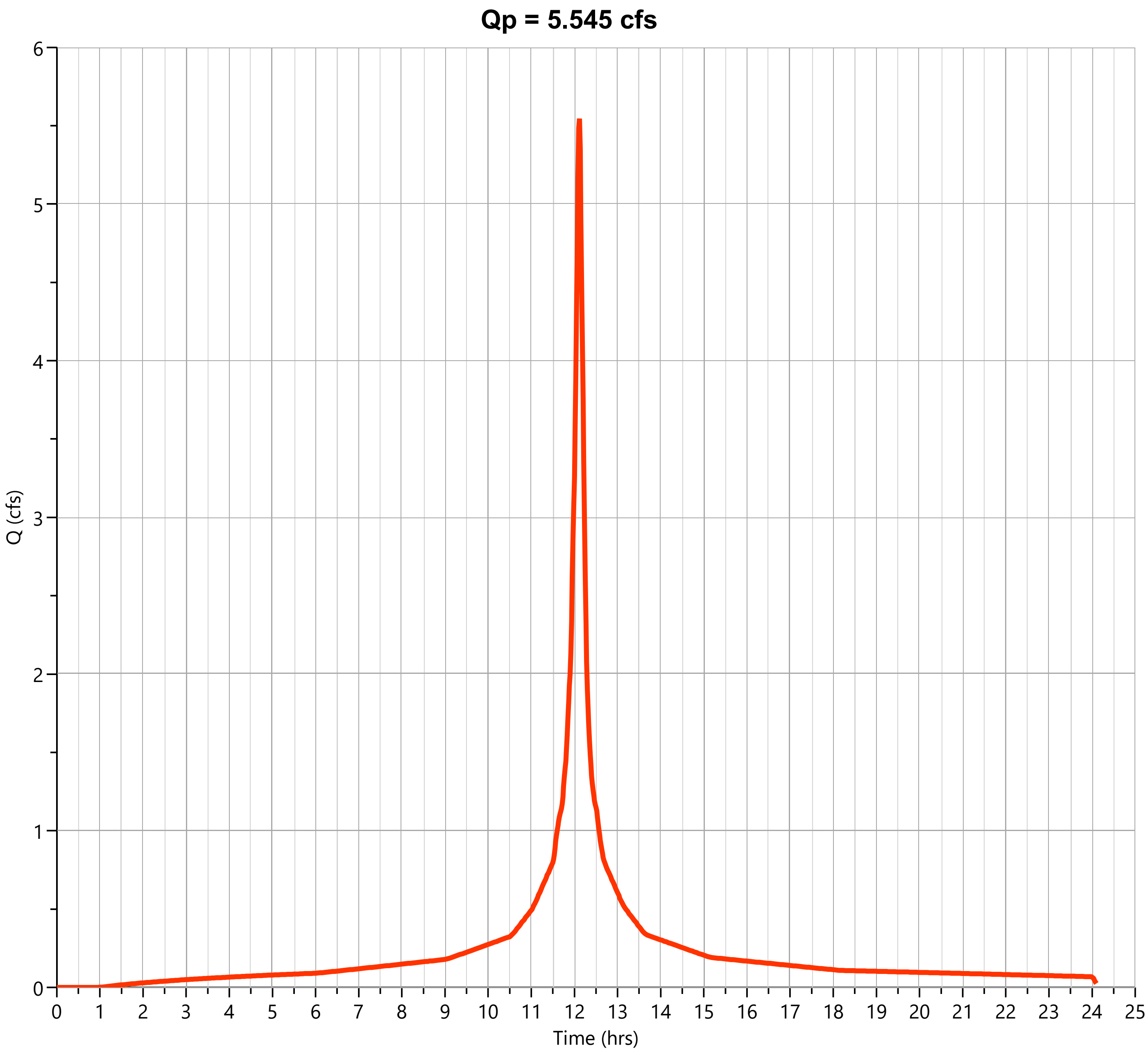
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.438 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.43 hrs
Time Interval	= 1 min	Runoff Volume	= 3,512 cuft
Drainage Area	= 1.27 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 19.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (D) (IMP)

Hyd. No. 2

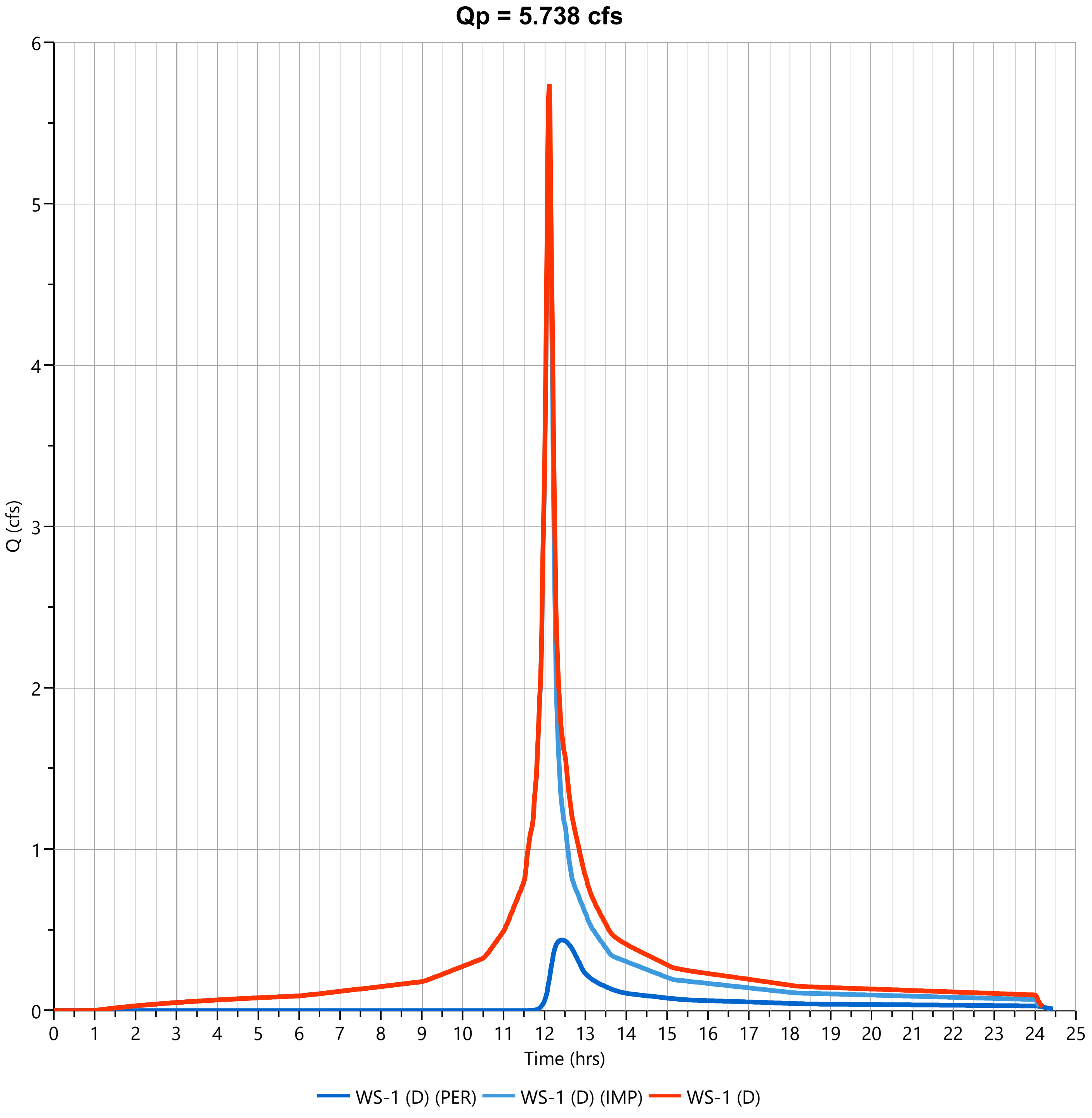
Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.545 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Runoff Volume	= 21,116 cuft
Drainage Area	= 1.51 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 4.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (D)

Hyd. No. 3

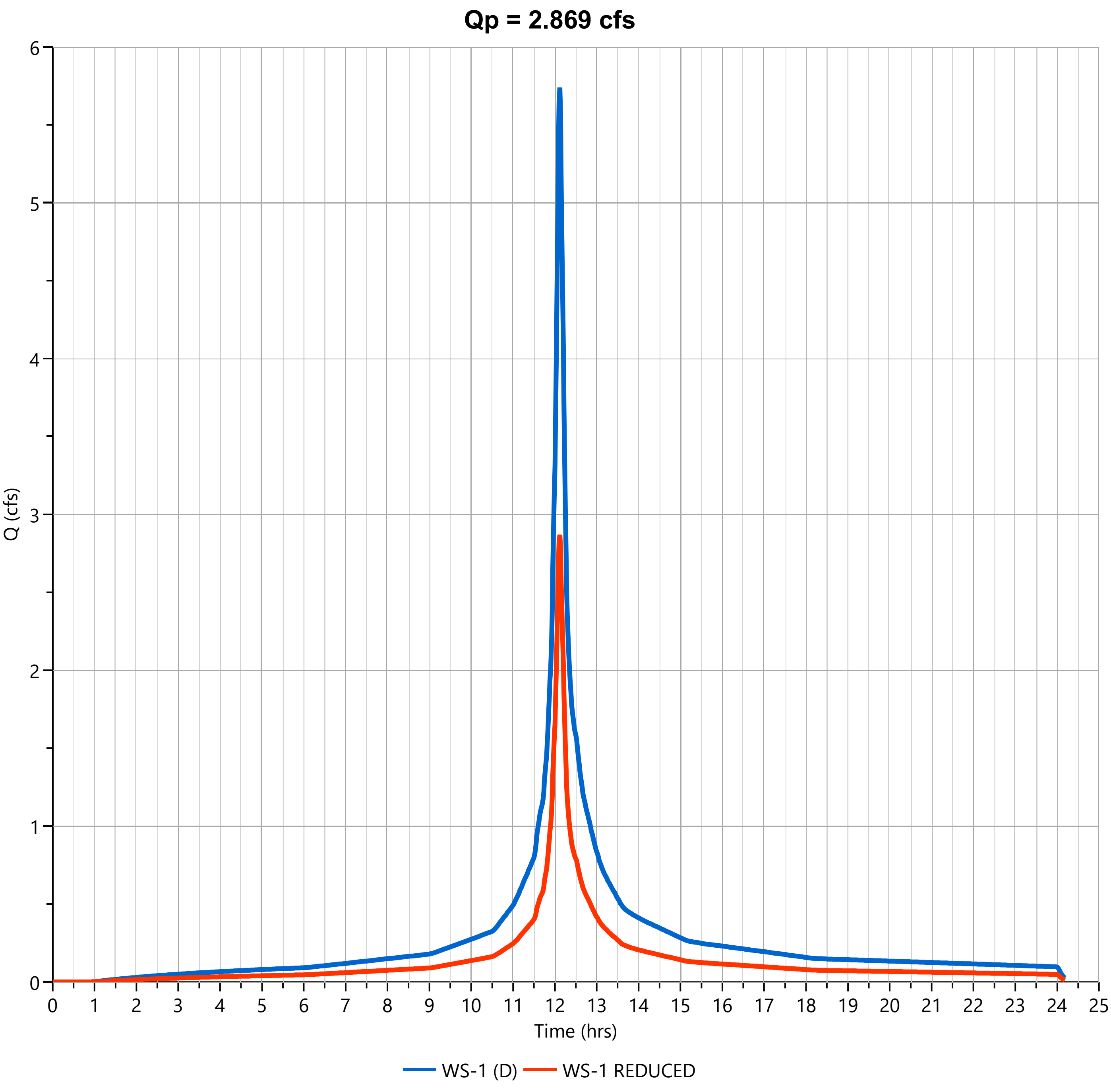
Hydrograph Type	= Junction	Peak Flow	= 5.738 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 24,628 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 2.78 ac



WS-1 REDUCED

Hyd. No. 4

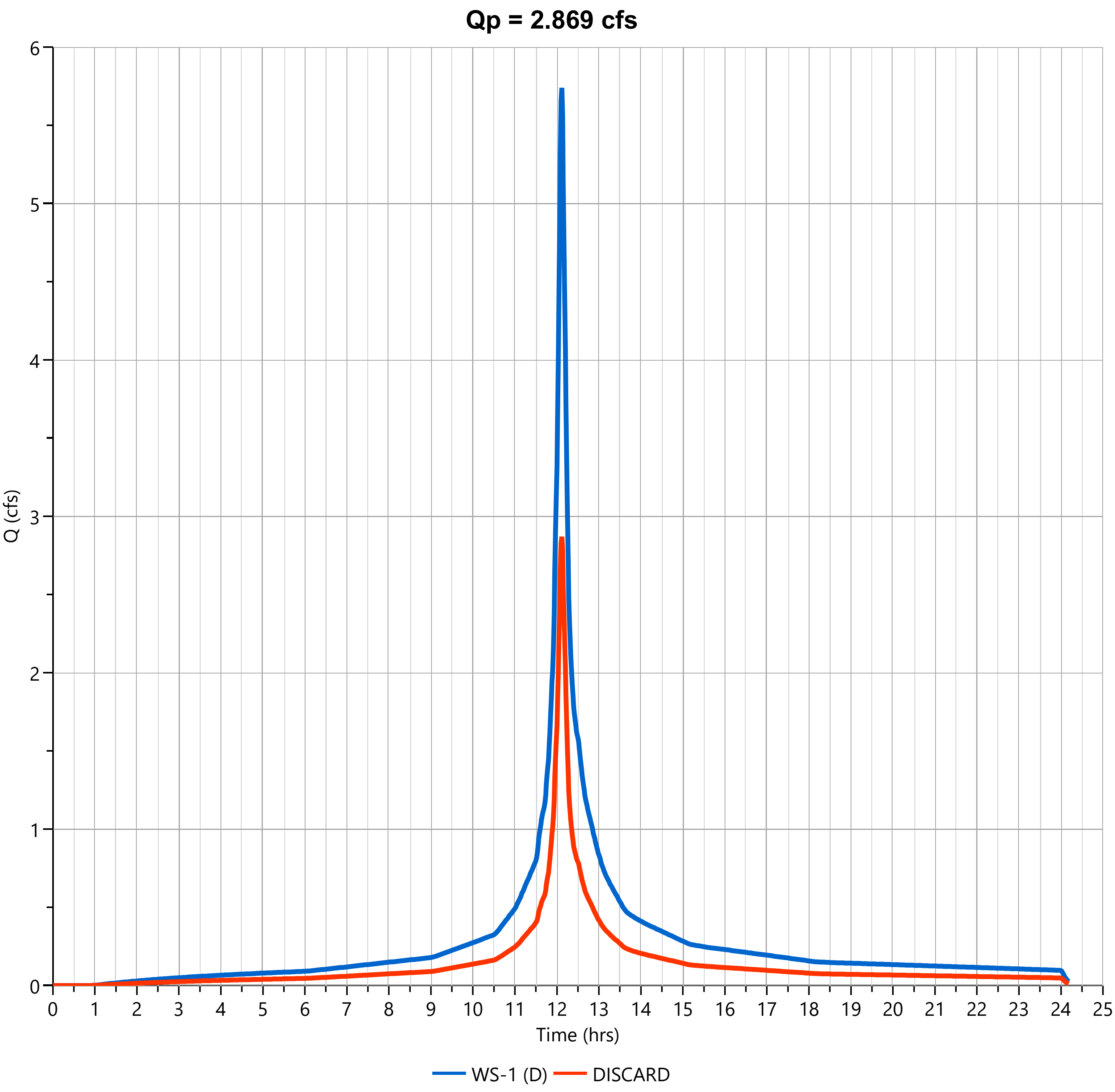
Hydrograph Type	= Diversion	Peak Flow	= 2.869 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 12,314 cuft
Inflow Hydrograph	= 3 - WS-1 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 5 - DISCARD	Flow Ratio	= 0.5



DISCARD

Hyd. No. 5

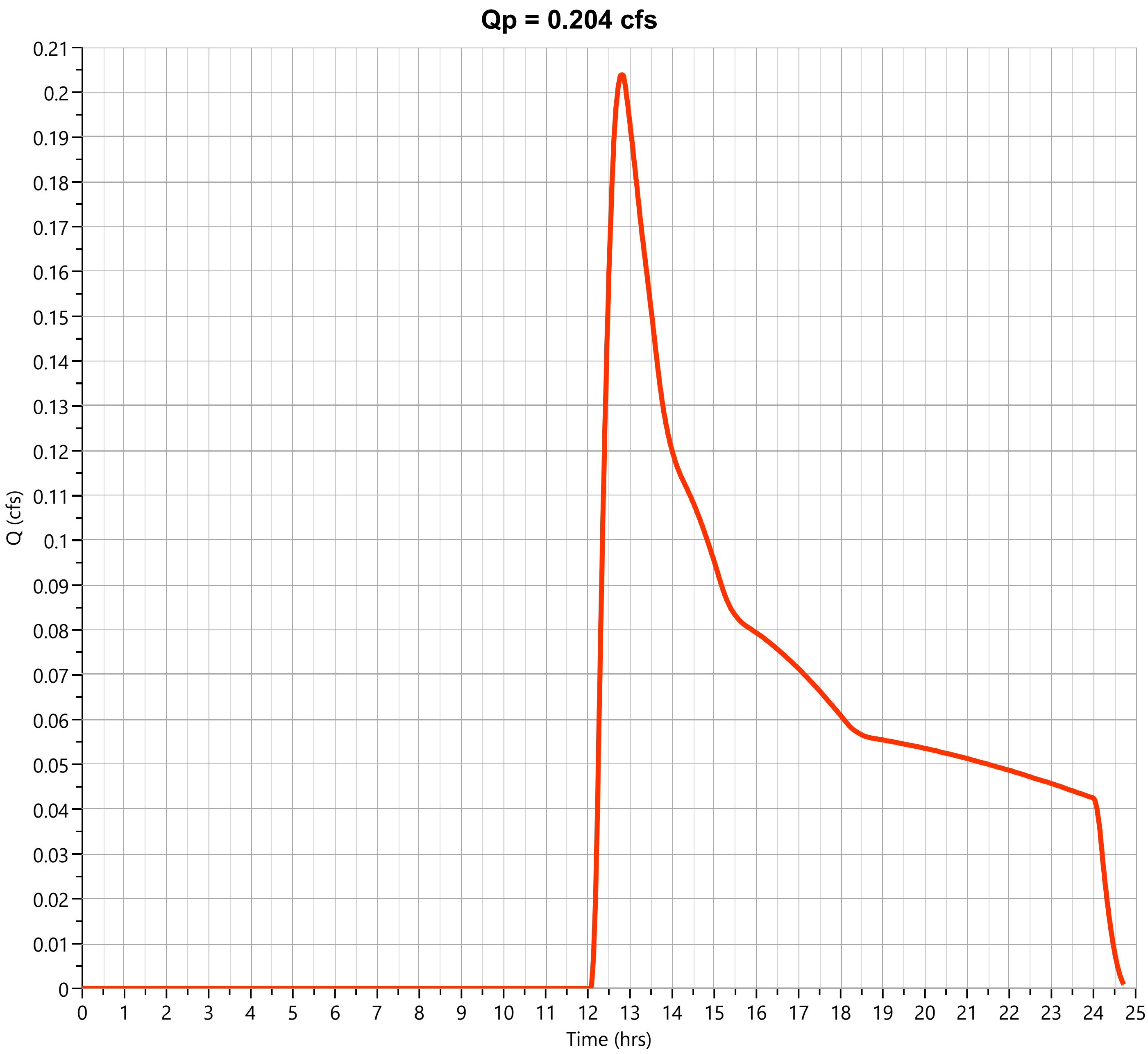
Hydrograph Type	= Diversion	Peak Flow	= 2.869 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 12,314 cuft
Inflow Hydrograph	= 3 - WS-1 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 4 - WS-1 REDUCED	Flow Ratio	= 0.5



WS-1 (U) (PER)

Hyd. No. 6

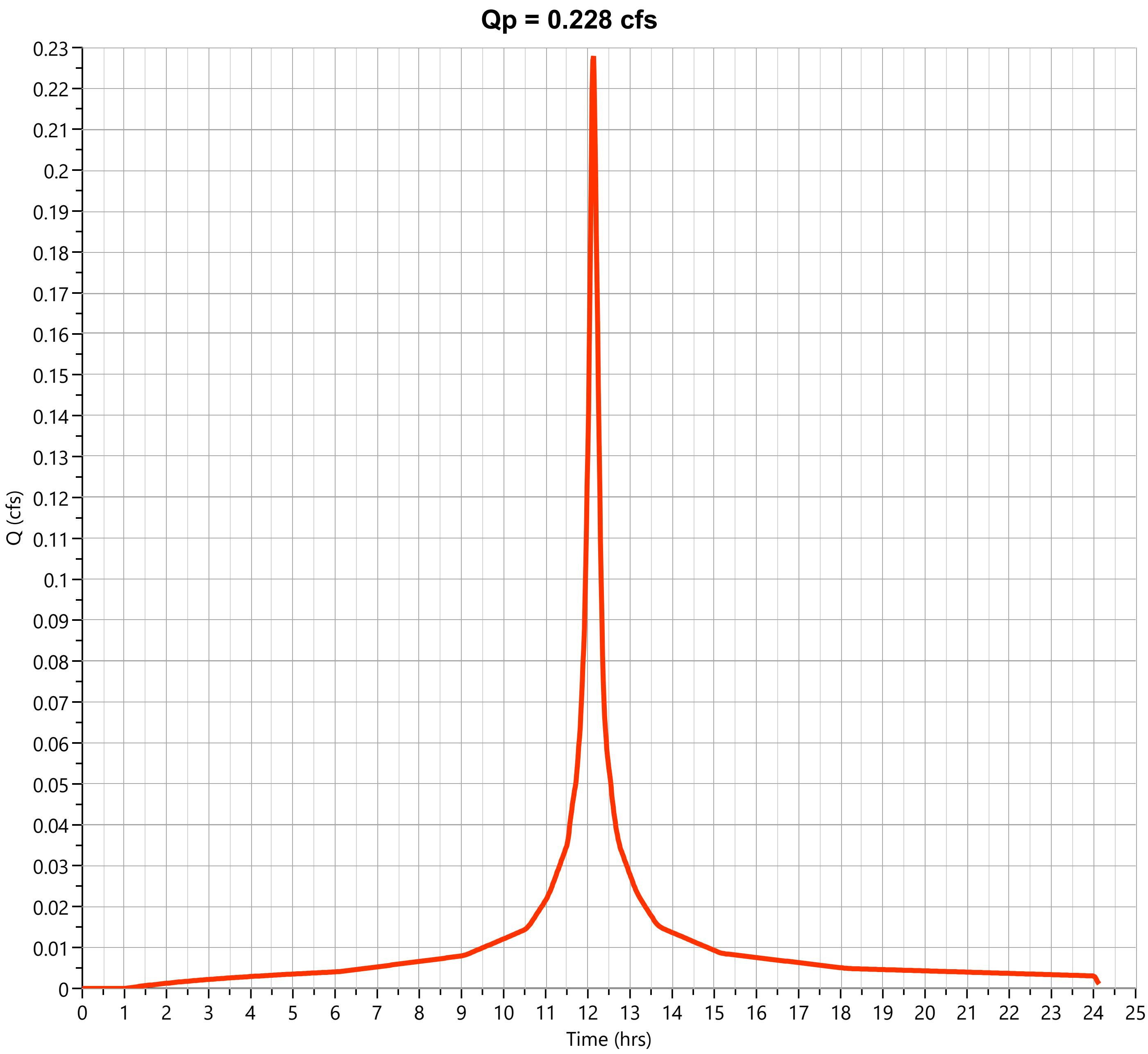
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.204 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.82 hrs
Time Interval	= 1 min	Runoff Volume	= 3,363 cuft
Drainage Area	= 3.54 ac	Curve Number	= 48.00
Tc Method	= User	Time of Conc. (Tc)	= 17.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (U) (IMP)

Hyd. No. 7

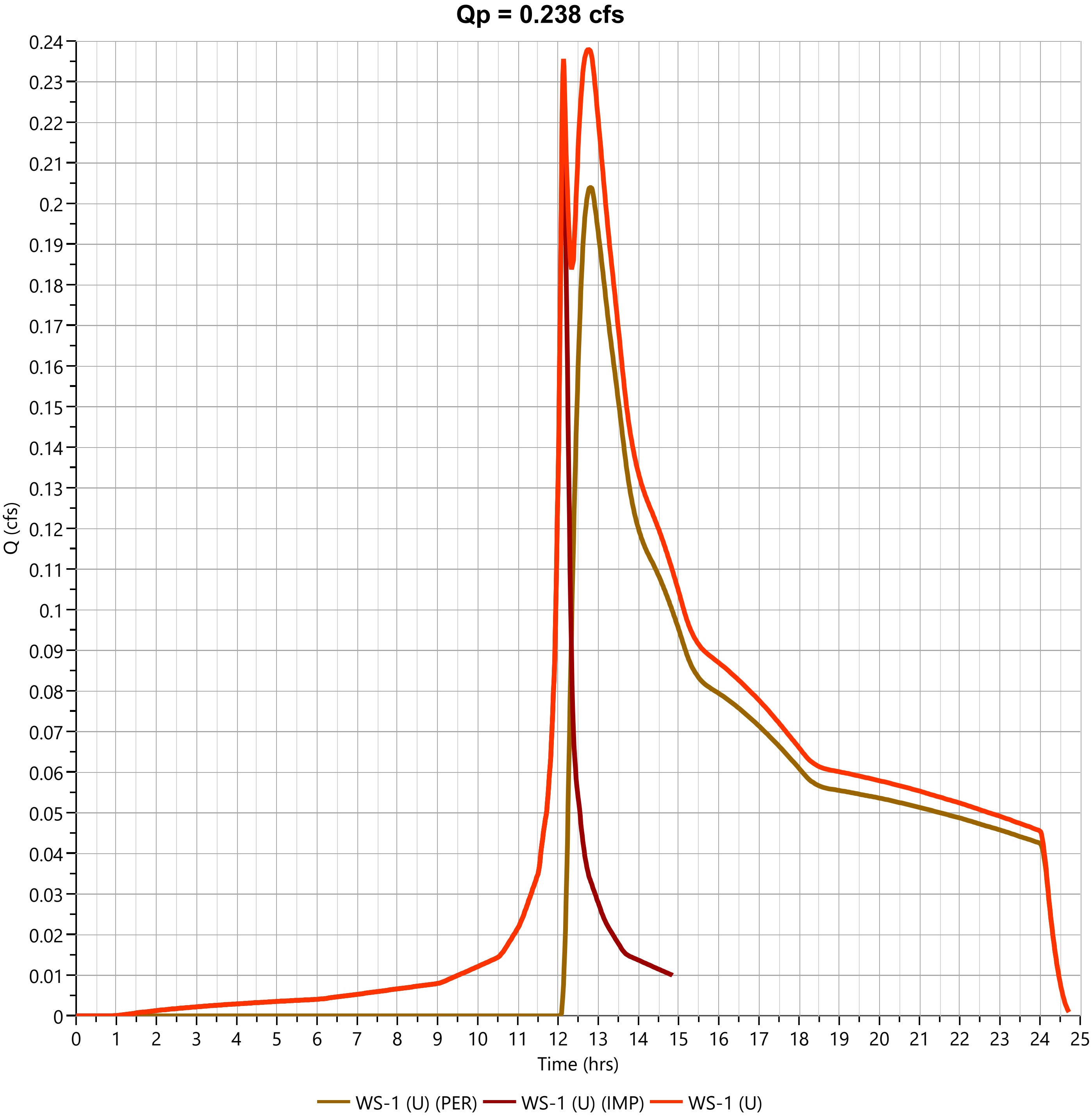
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.228 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Runoff Volume	= 944 cuft
Drainage Area	= 0.07 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (U)

Hyd. No. 8

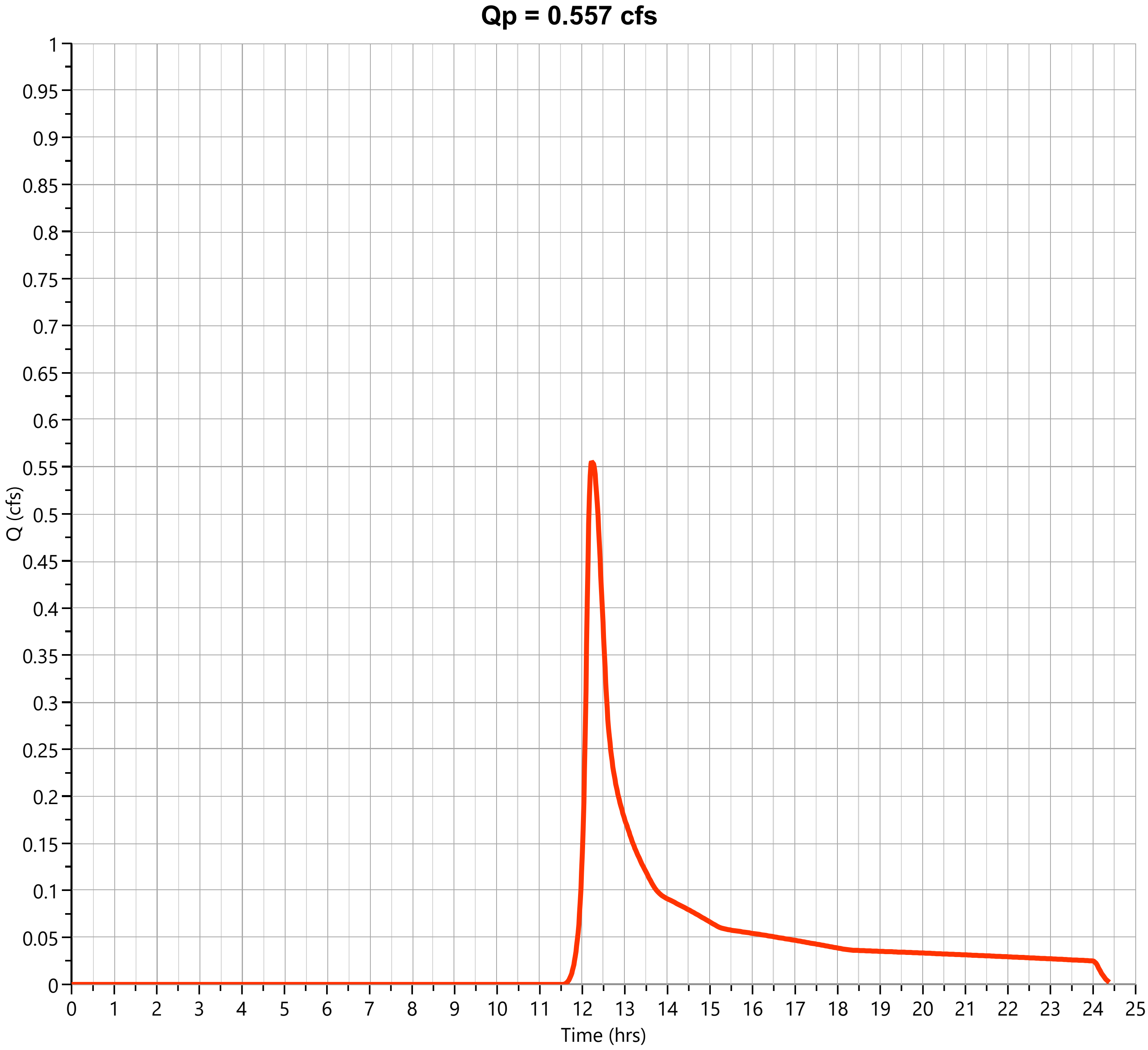
Hydrograph Type	= Junction	Peak Flow	= 0.238 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.75 hrs
Time Interval	= 1 min	Hydrograph Volume	= 4,307 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 3.61 ac



WS-2 (D) (PER)

Hyd. No. 9

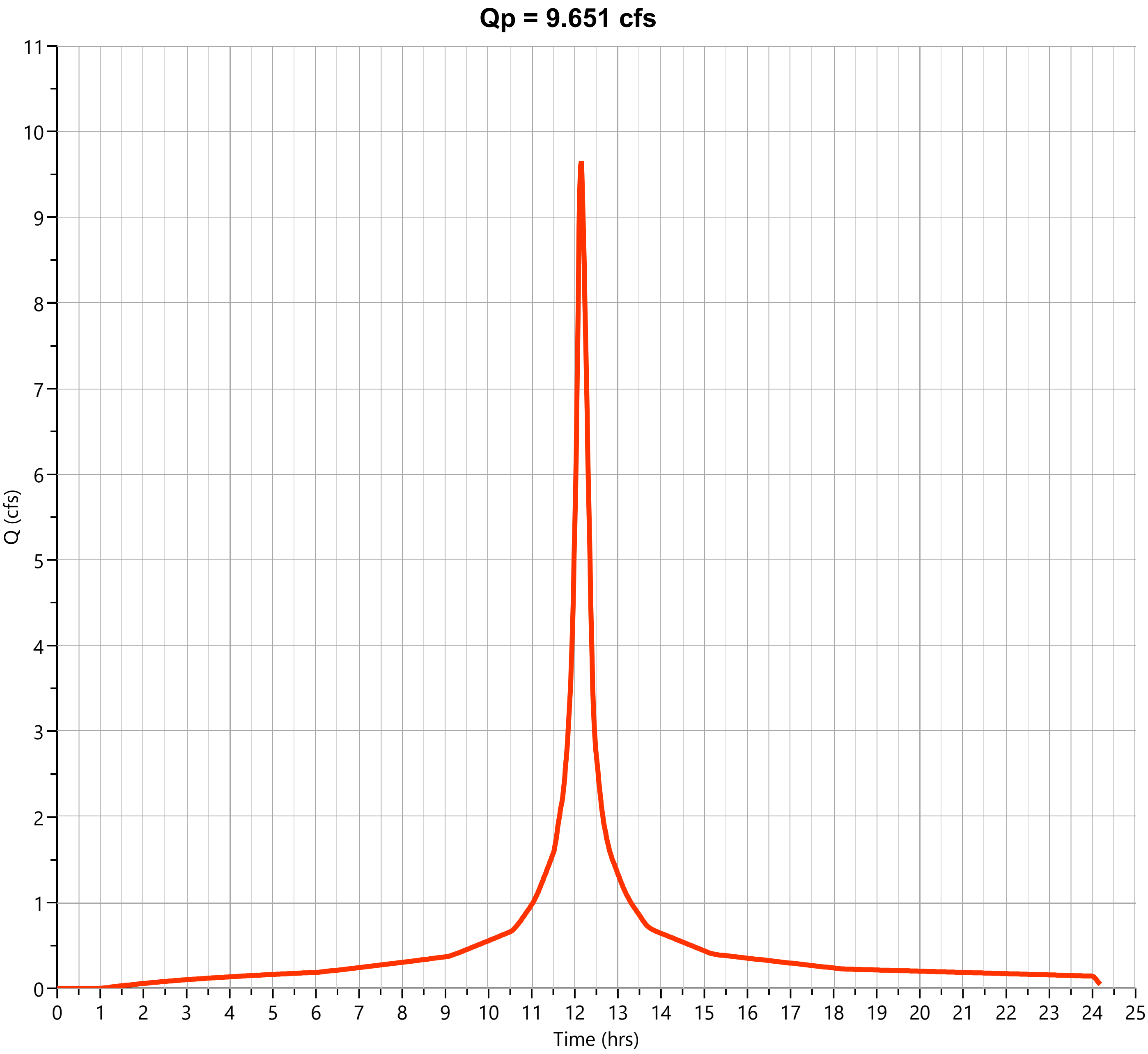
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.557 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.23 hrs
Time Interval	= 1 min	Runoff Volume	= 3,236 cuft
Drainage Area	= 1.1 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (D) (IMP)

Hyd. No. 10

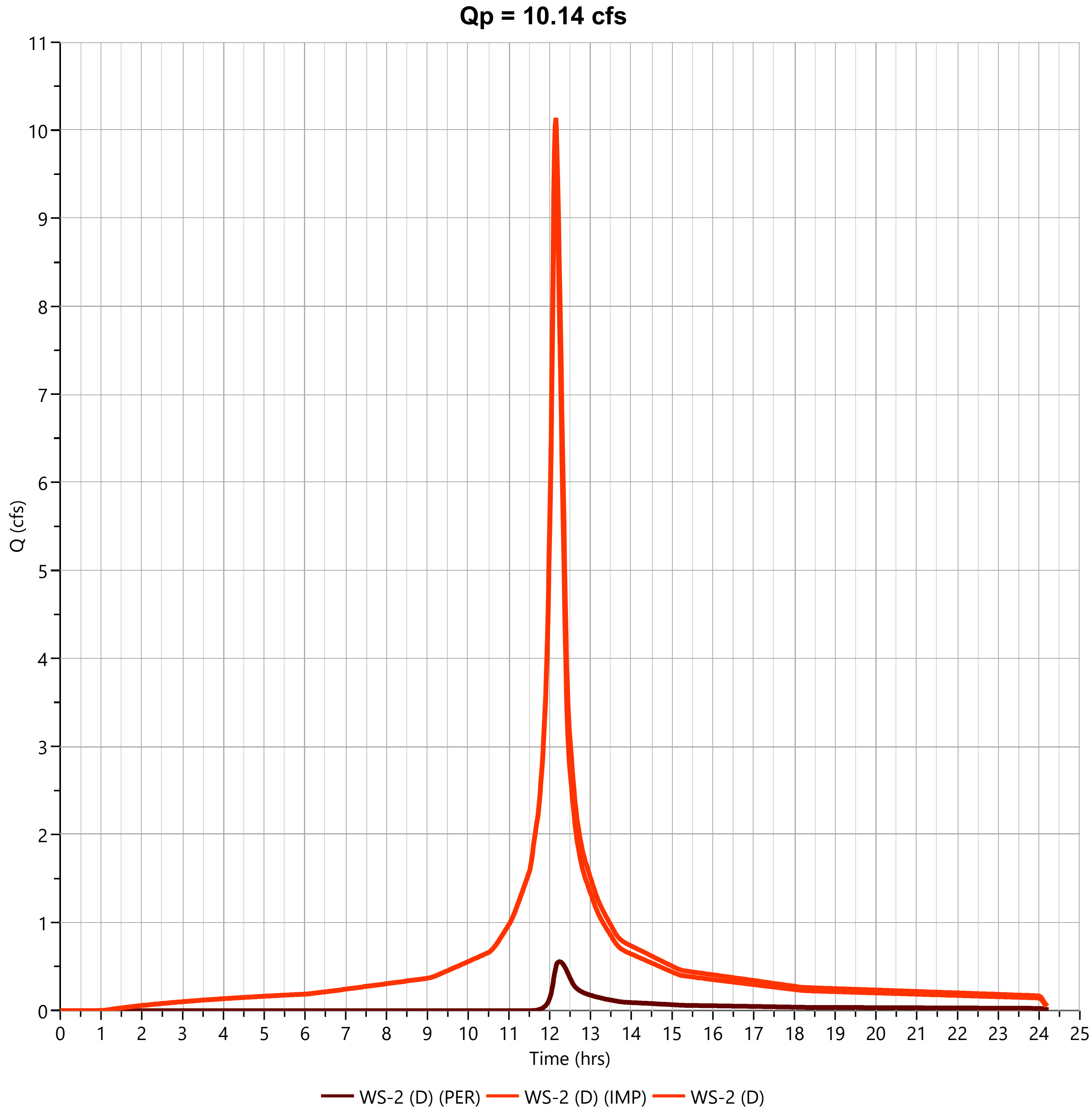
Hydrograph Type	= NRCS Runoff	Peak Flow	= 9.651 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Runoff Volume	= 43,835 cuft
Drainage Area	= 3.18 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 8.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (D)

Hyd. No. 11

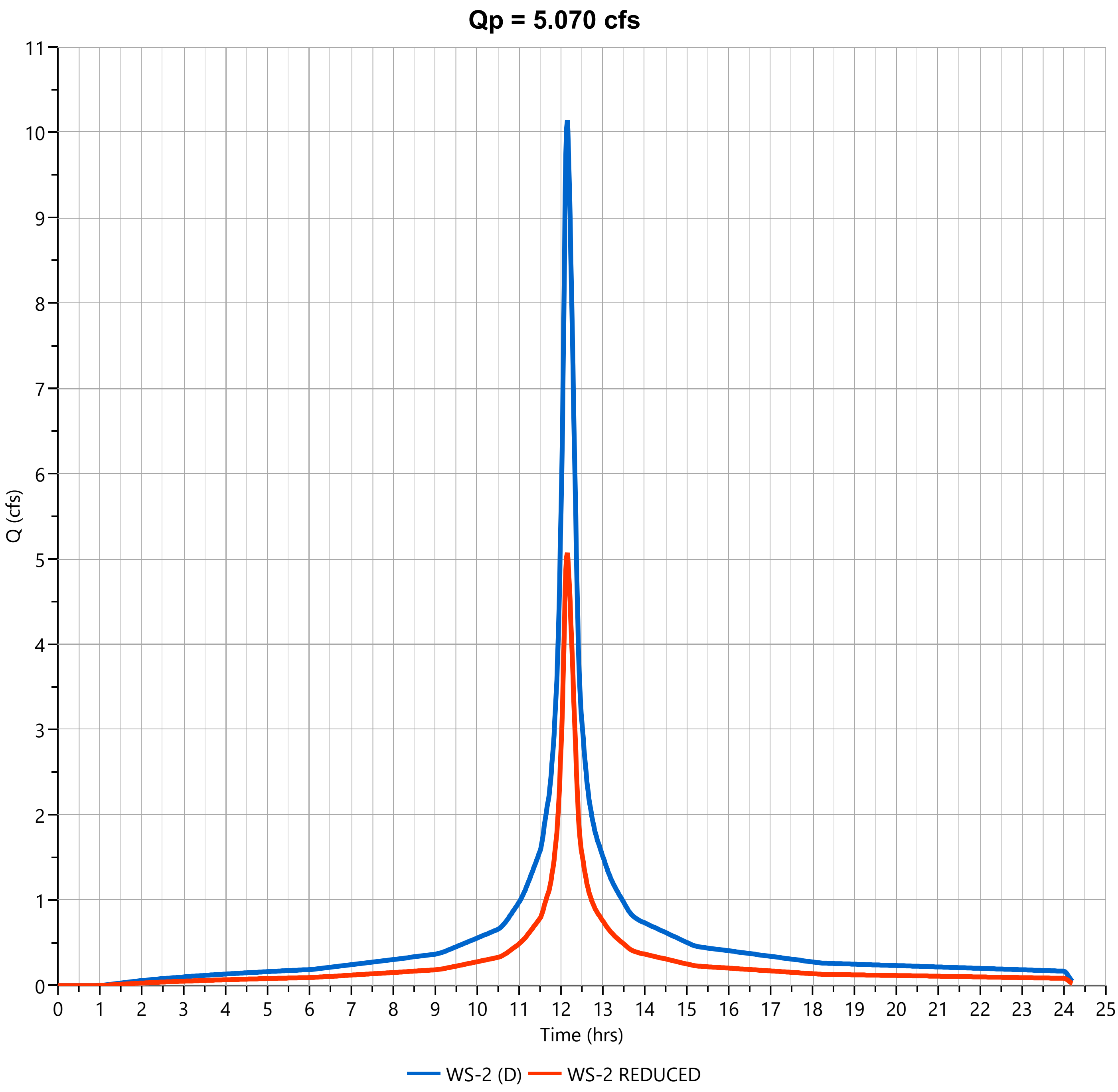
Hydrograph Type	= Junction	Peak Flow	= 10.14 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 47,070 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 4.28 ac



WS-2 REDUCED

Hyd. No. 12

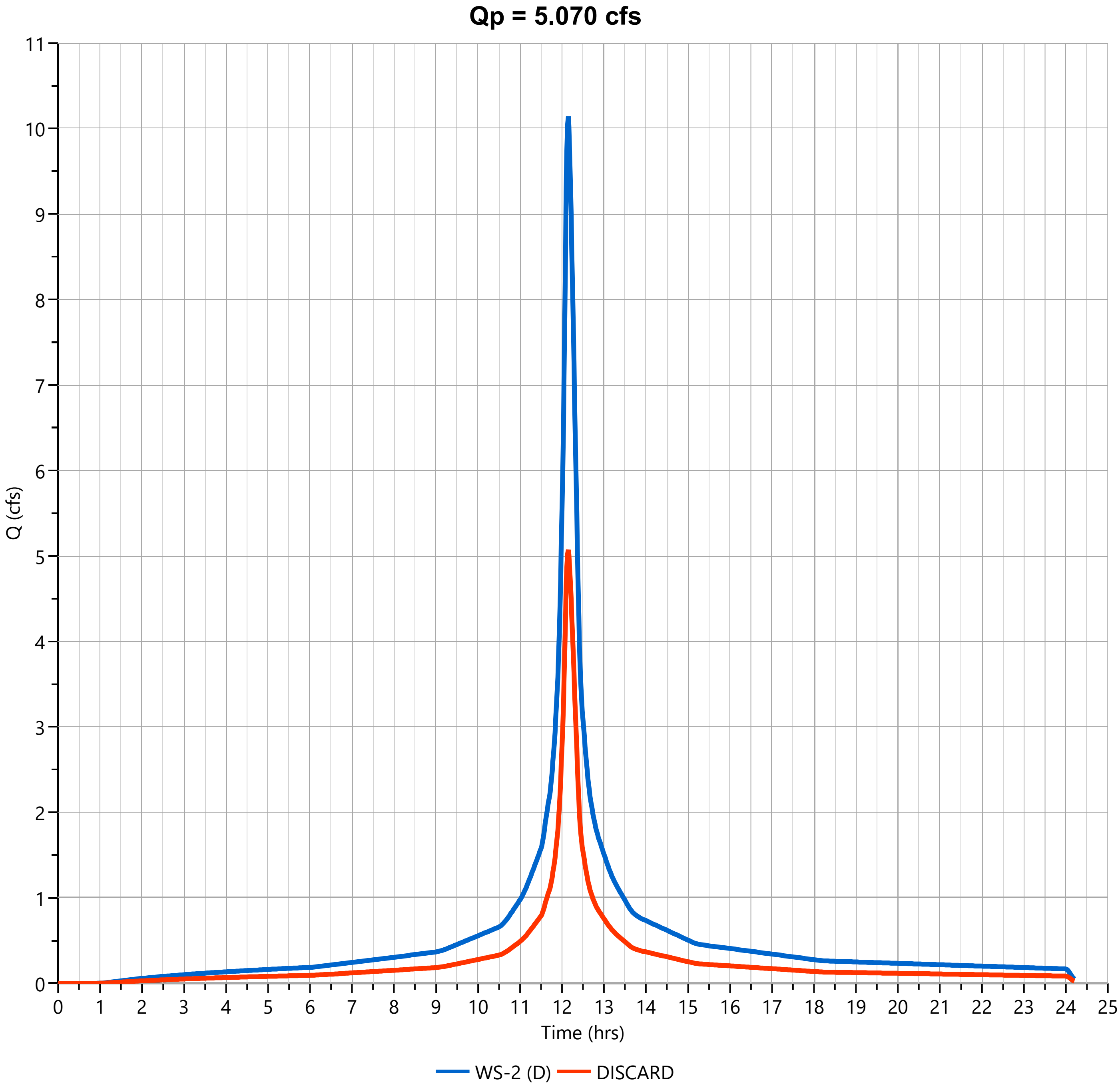
Hydrograph Type	= Diversion	Peak Flow	= 5.070 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 23,535 cuft
Inflow Hydrograph	= 11 - WS-2 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 13 - DISCARD	Flow Ratio	= 0.5



DISCARD

Hyd. No. 13

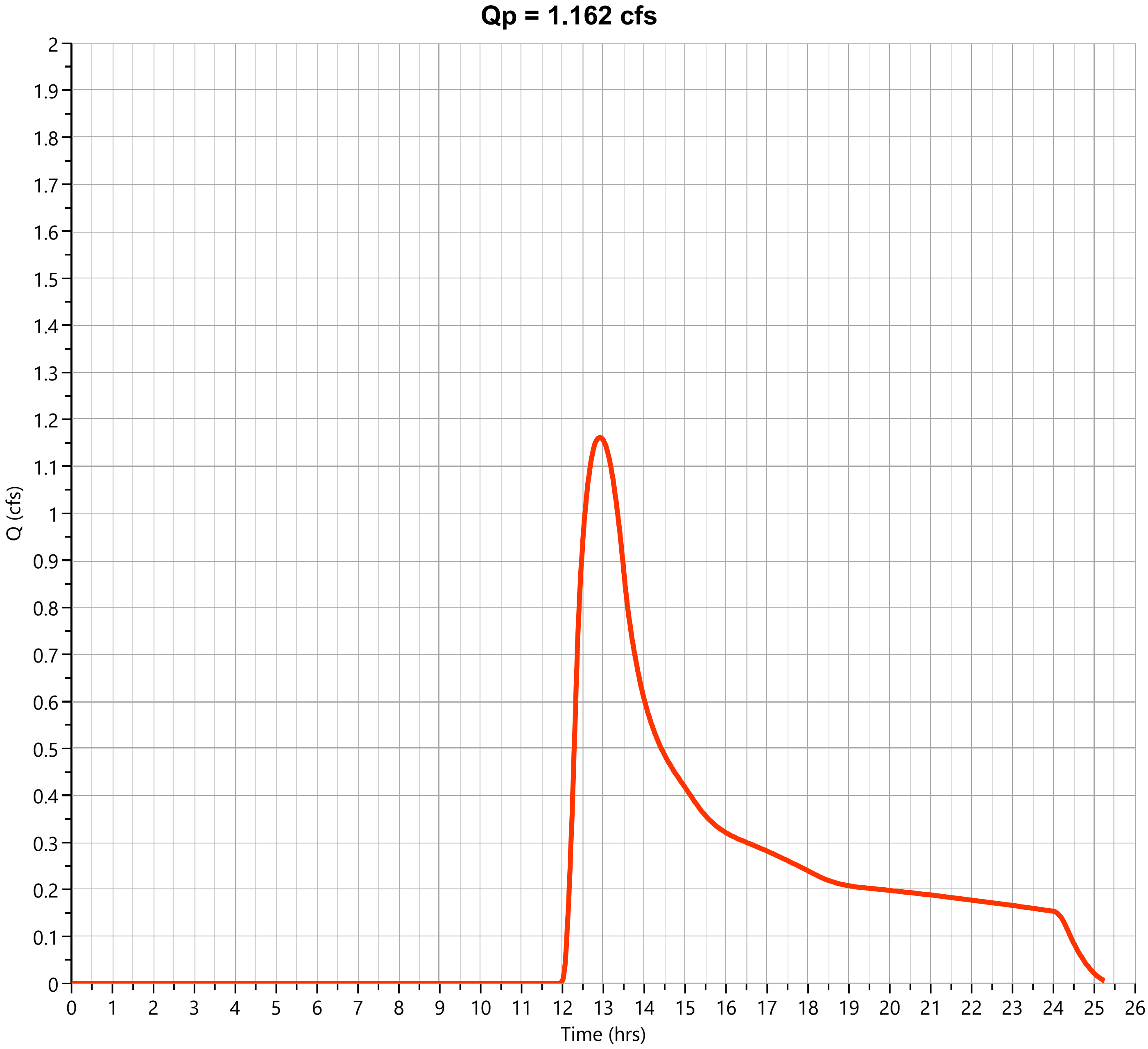
Hydrograph Type	= Diversion	Peak Flow	= 5.070 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 23,535 cuft
Inflow Hydrograph	= 11 - WS-2 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 12 - WS-2 REDUCED	Flow Ratio	= 0.5



WS-2 (U) (PER)

Hyd. No. 14

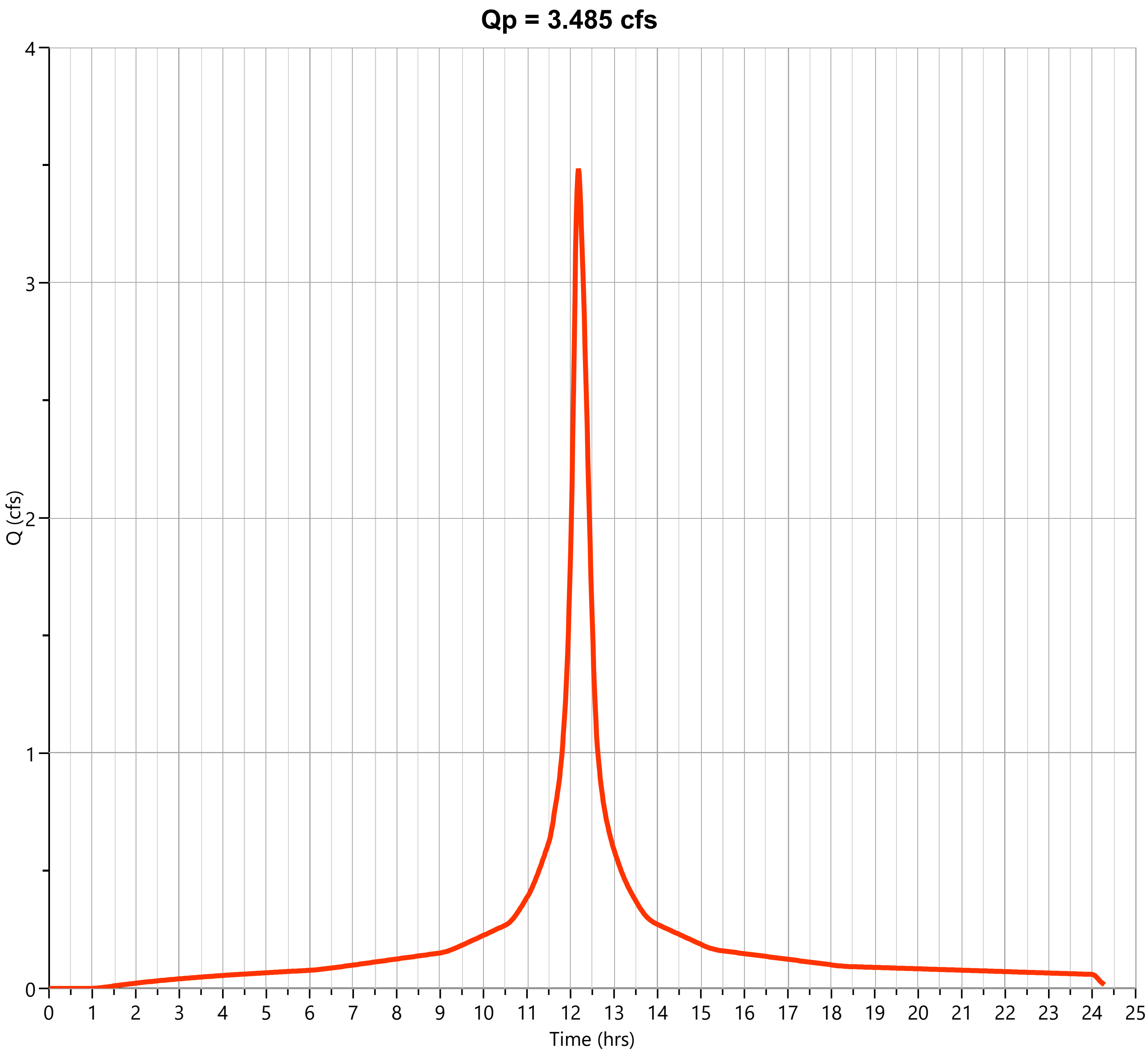
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.162 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.92 hrs
Time Interval	= 1 min	Runoff Volume	= 15,447 cuft
Drainage Area	= 8.81 ac	Curve Number	= 54.00
Tc Method	= User	Time of Conc. (Tc)	= 33.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (U) (IMP)

Hyd. No. 15

Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.485 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 18,219 cuft
Drainage Area	= 1.33 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



Hydrograph Report

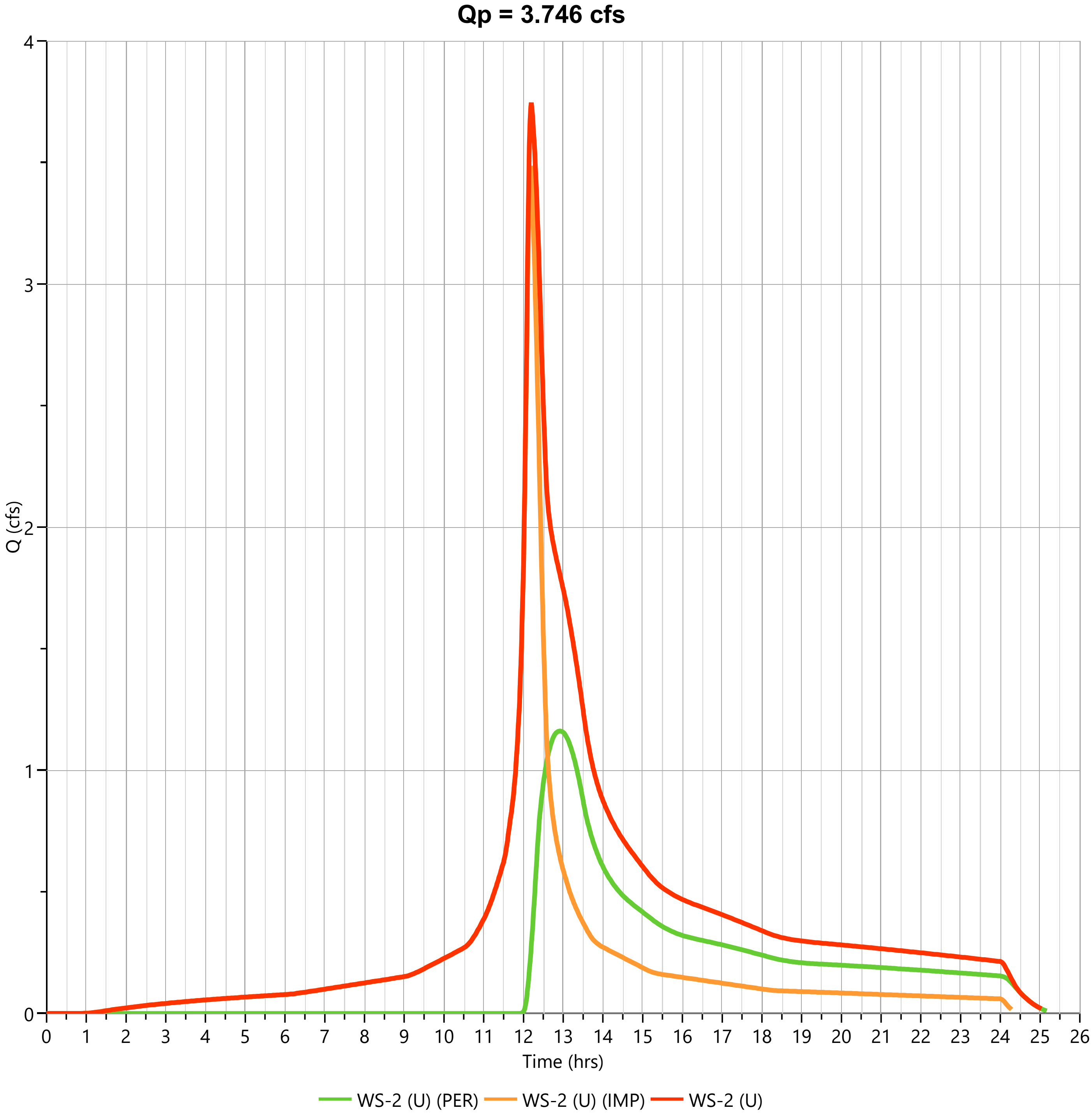
Hydrology Studio v 3.0.0.44

File: 102054601 - Future Existing.hys
07-23-2026

WS-2 (U)

Hyd. No. 16

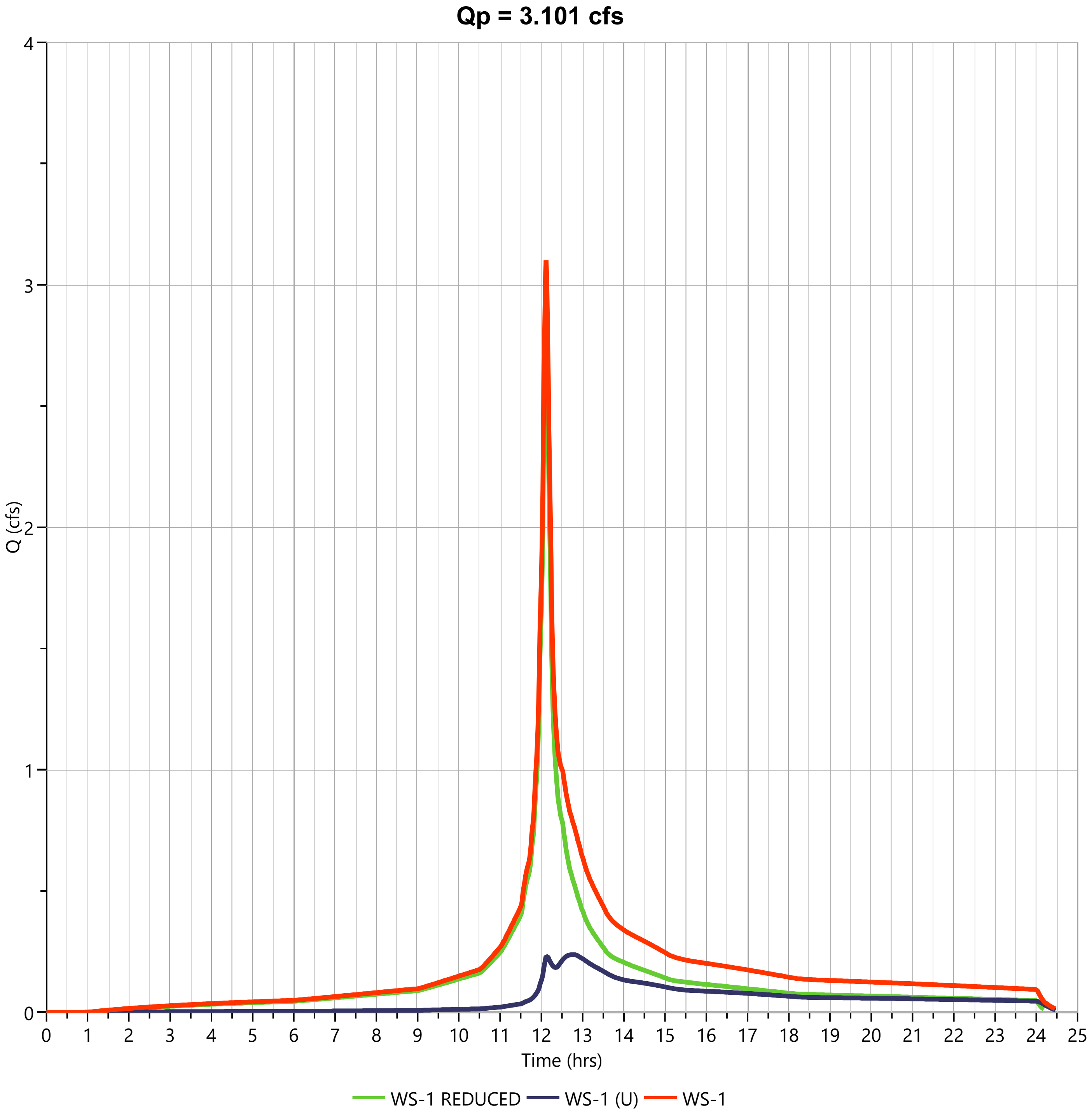
Hydrograph Type	= Junction	Peak Flow	= 3.746 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.20 hrs
Time Interval	= 1 min	Hydrograph Volume	= 33,667 cuft
Inflow Hydrographs	= 14, 15	Total Contrib. Area	= 10.14 ac



WS-1

Hyd. No. 17

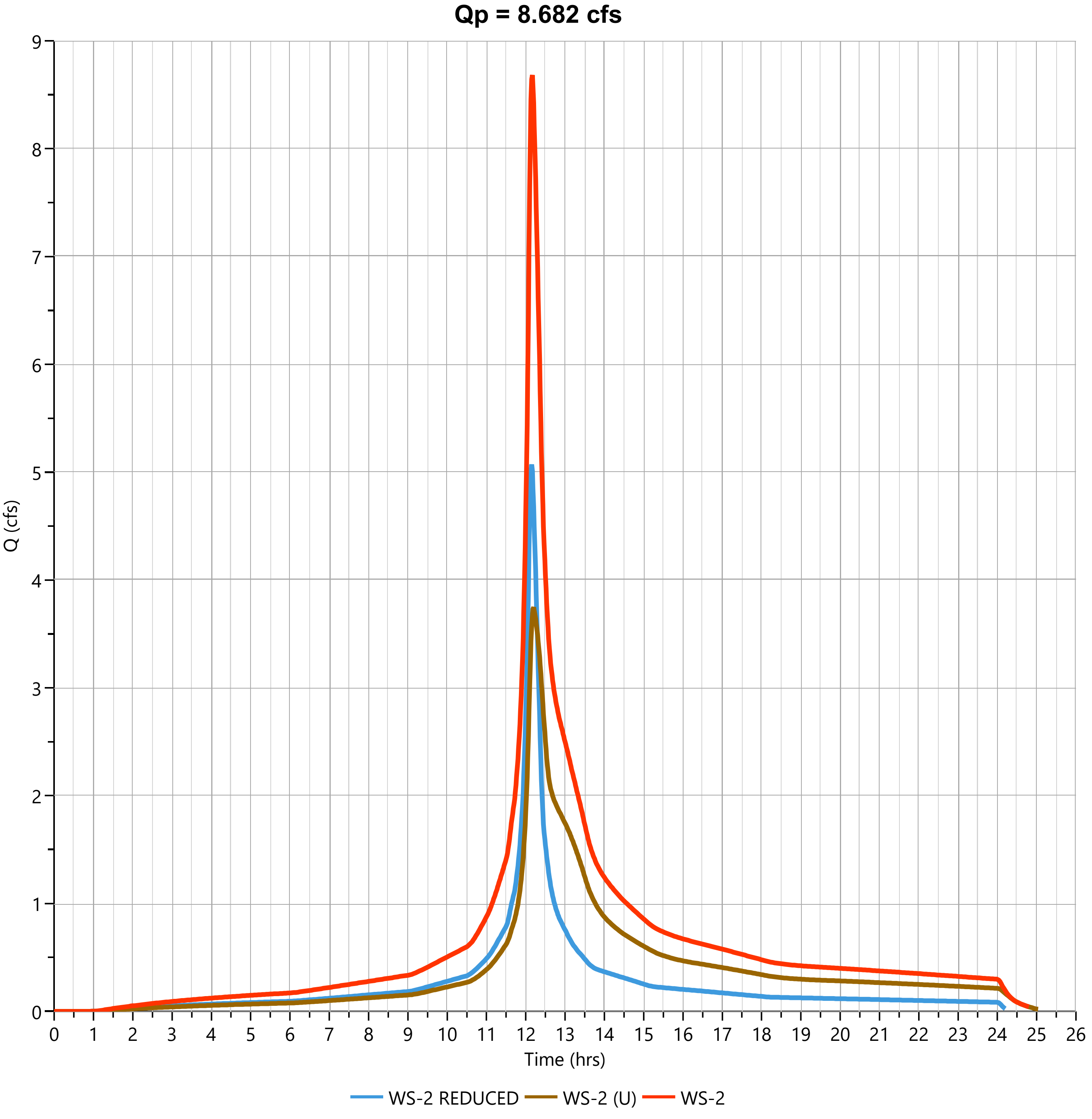
Hydrograph Type	= Junction	Peak Flow	= 3.101 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 16,621 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



WS-2

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 8.682 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 57,202 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



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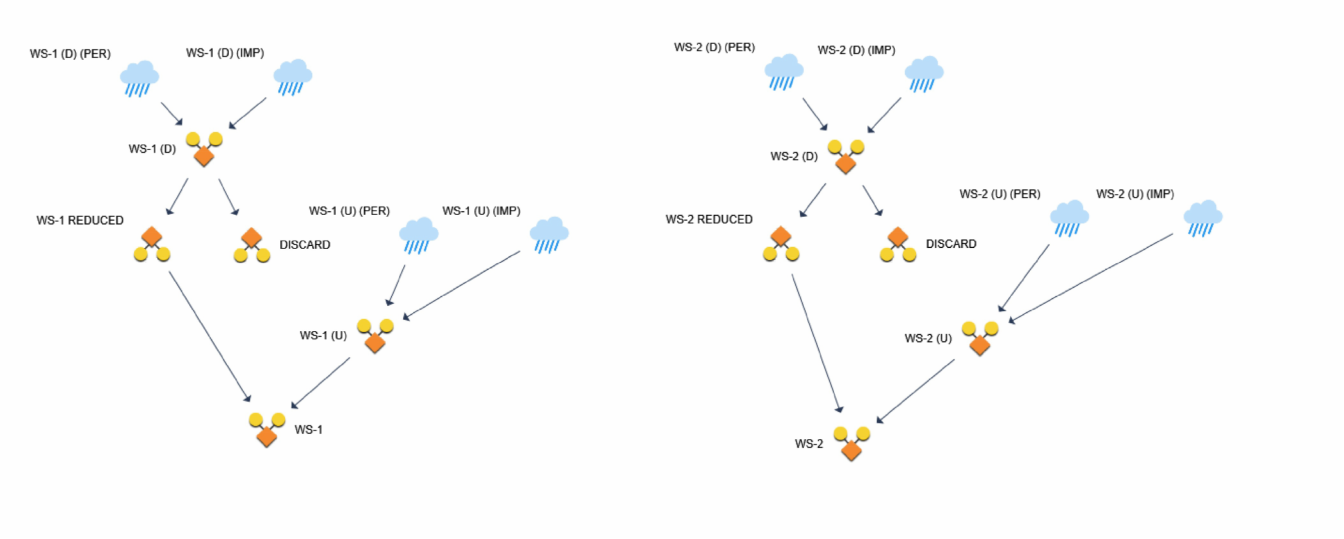
Basin Model

Hydrology Studio v 3.0.0.44

File: 102054601 - Future Existing.hys

07-23-2026


WS-1 (D) (PER)
WS-1 (D) (IMP)
WS-1 (D)
WS-1 REDUCED
DISCARD
WS-1 (U) (PER)
WS-1 (U) (IMP)
WS-1 (U)
WS-1
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WS-2 (D) (IMP)
WS-2 (D)
WS-2 REDUCED
DISCARD
WS-2 (U) (PER)
WS-2 (U) (IMP)
WS-2 (U)
WS-2

Hydrograph by Return Period

Hydrology Studio v 3.0.0.44

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07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	WS-1 (D) (PER)					1.423			
2	NRCS Runoff	WS-1 (D) (IMP)					8.581			
3	Junction	WS-1 (D)					9.455			
4	Diversion1	WS-1 REDUCED					7.091			
5	Diversion2	DISCARD					2.364			
6	NRCS Runoff	WS-1 (U) (PER)					1.718			
7	NRCS Runoff	WS-1 (U) (IMP)					0.353			
8	Junction	WS-1 (U)					1.827			
9	NRCS Runoff	WS-2 (D) (PER)					1.733			
10	NRCS Runoff	WS-2 (D) (IMP)					14.94			
11	Junction	WS-2 (D)					16.56			
12	Diversion1	WS-2 REDUCED					12.42			
13	Diversion2	DISCARD					4.139			
14	NRCS Runoff	WS-2 (U) (PER)					5.100			
15	NRCS Runoff	WS-2 (U) (IMP)					5.397			
16	Junction	WS-2 (U)					8.383			
17	Junction	WS-1					8.206			
18	Junction	WS-2					19.93			

Hydrograph 10-yr Summary

Hydrology Studio v 3.0.0.44

File: 102054601 - Future Existing.hys

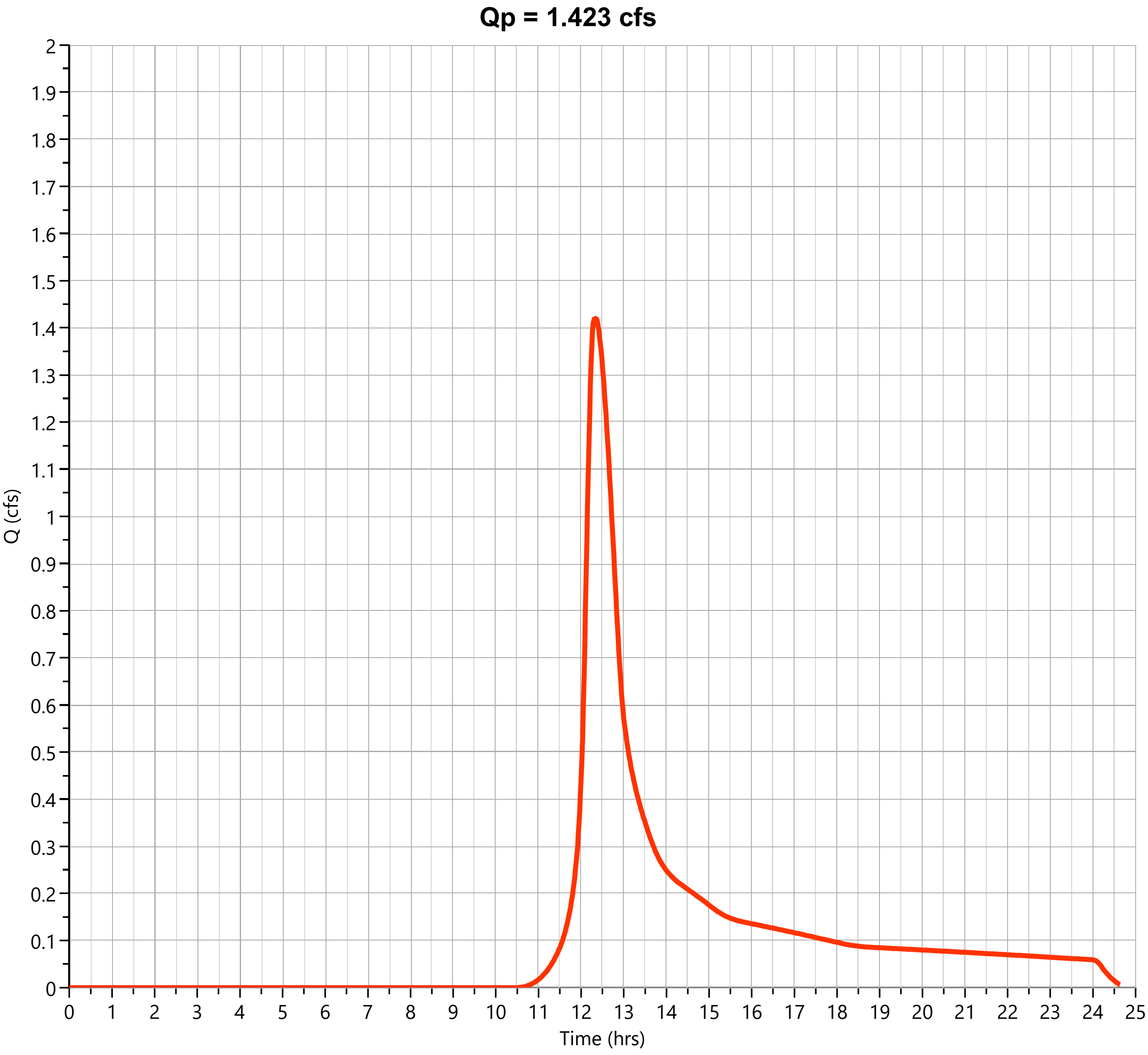
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	WS-1 (D) (PER)	1.423	12.33	9,364	----		
2	NRCS Runoff	WS-1 (D) (IMP)	8.581	12.12	33,220	----		
3	Junction	WS-1 (D)	9.455	12.12	42,584	1, 2		
4	Diversion1	WS-1 REDUCED	7.091	12.12	31,938	3		
5	Diversion2	DISCARD	2.364	12.12	10,646	3		
6	NRCS Runoff	WS-1 (U) (PER)	1.718	12.42	13,706	----		
7	NRCS Runoff	WS-1 (U) (IMP)	0.353	12.13	1,485	----		
8	Junction	WS-1 (U)	1.827	12.35	15,191	6, 7		
9	NRCS Runoff	WS-2 (D) (PER)	1.733	12.20	8,435	----		
10	NRCS Runoff	WS-2 (D) (IMP)	14.94	12.15	68,961	----		
11	Junction	WS-2 (D)	16.56	12.15	77,396	9, 10		
12	Diversion1	WS-2 REDUCED	12.42	12.15	58,047	11		
13	Diversion2	DISCARD	4.139	12.15	19,349	11		
14	NRCS Runoff	WS-2 (U) (PER)	5.100	12.62	48,649	----		
15	NRCS Runoff	WS-2 (U) (IMP)	5.397	12.18	28,663	----		
16	Junction	WS-2 (U)	8.383	12.32	77,312	14, 15		
17	Junction	WS-1	8.206	12.12	47,129	4, 8		
18	Junction	WS-2	19.93	12.17	135,359	12, 16		

WS-1 (D) (PER)

Hyd. No. 1

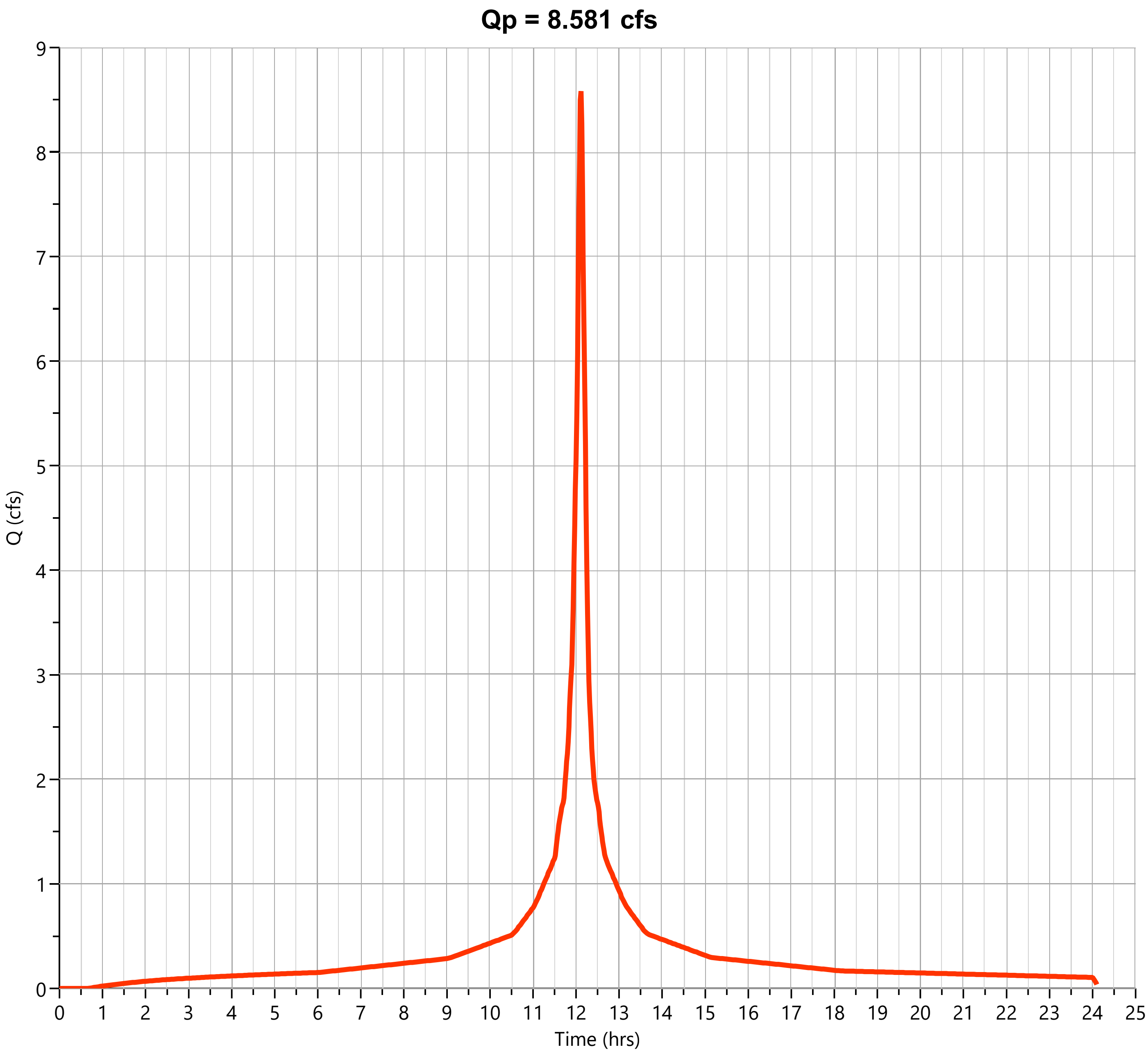
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.423 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.33 hrs
Time Interval	= 1 min	Runoff Volume	= 9,364 cuft
Drainage Area	= 1.27 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 19.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (D) (IMP)

Hyd. No. 2

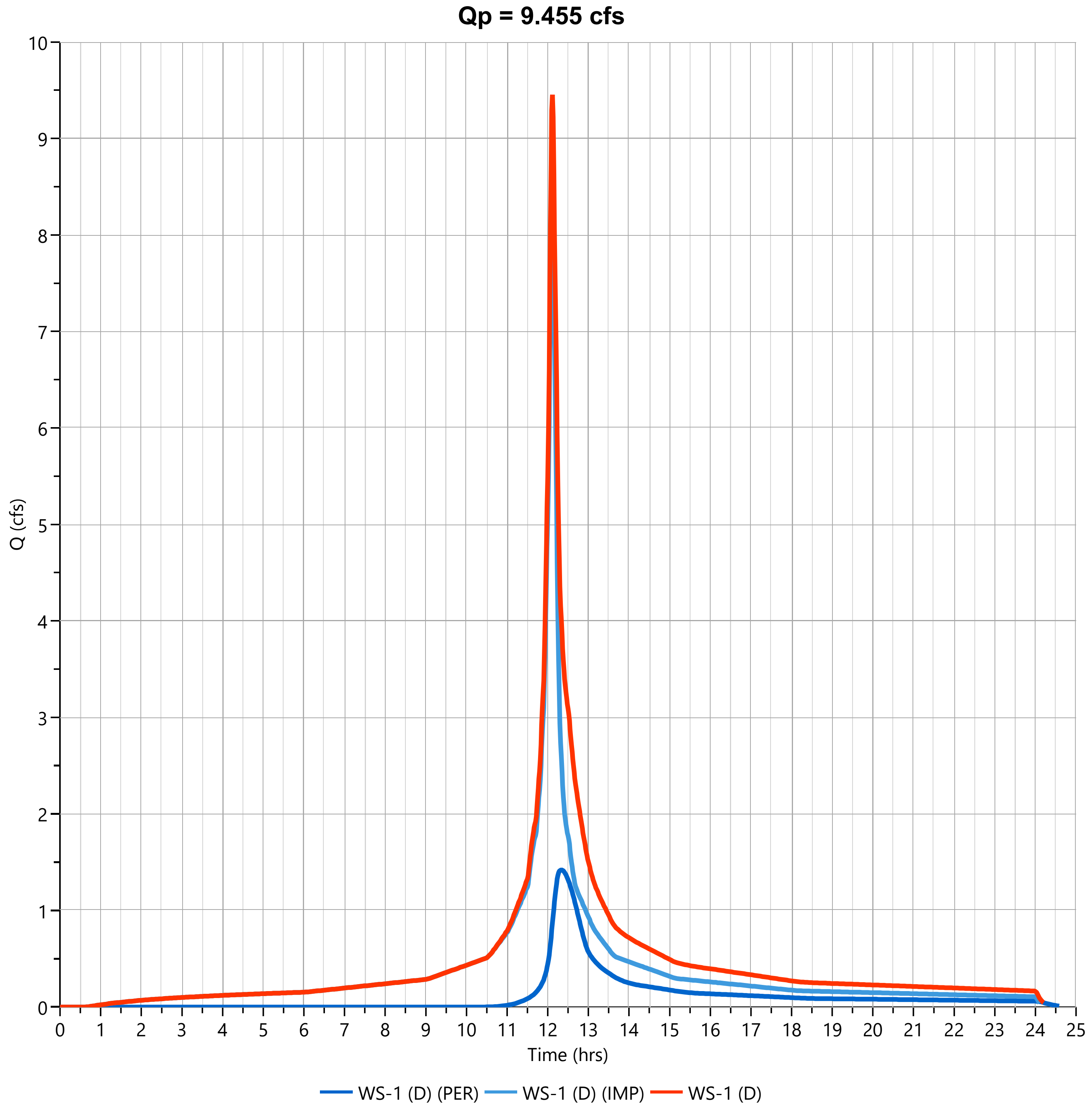
Hydrograph Type	= NRCS Runoff	Peak Flow	= 8.581 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Runoff Volume	= 33,220 cuft
Drainage Area	= 1.51 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 4.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (D)

Hyd. No. 3

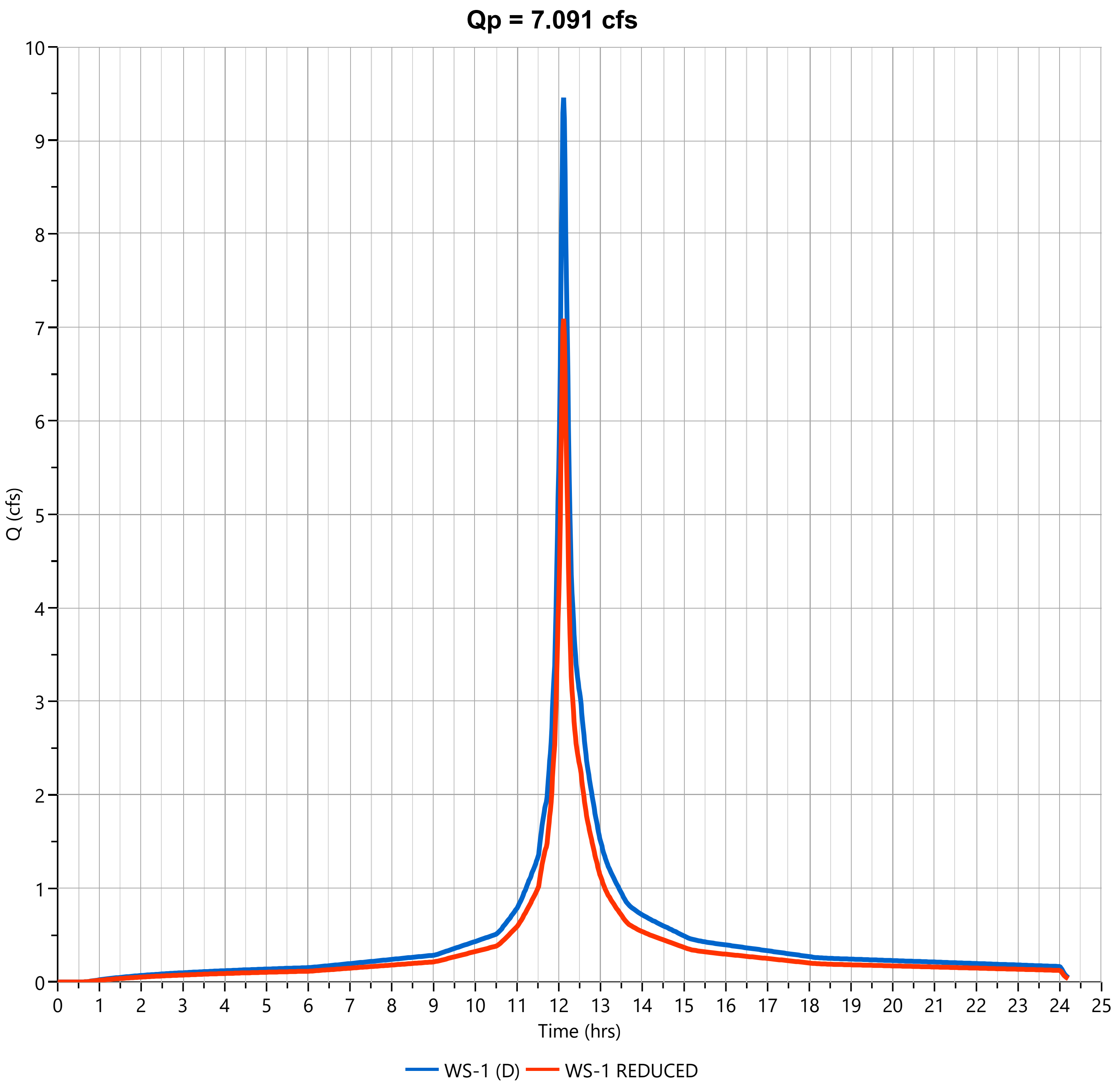
Hydrograph Type	= Junction	Peak Flow	= 9.455 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 42,584 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 2.78 ac



WS-1 REDUCED

Hyd. No. 4

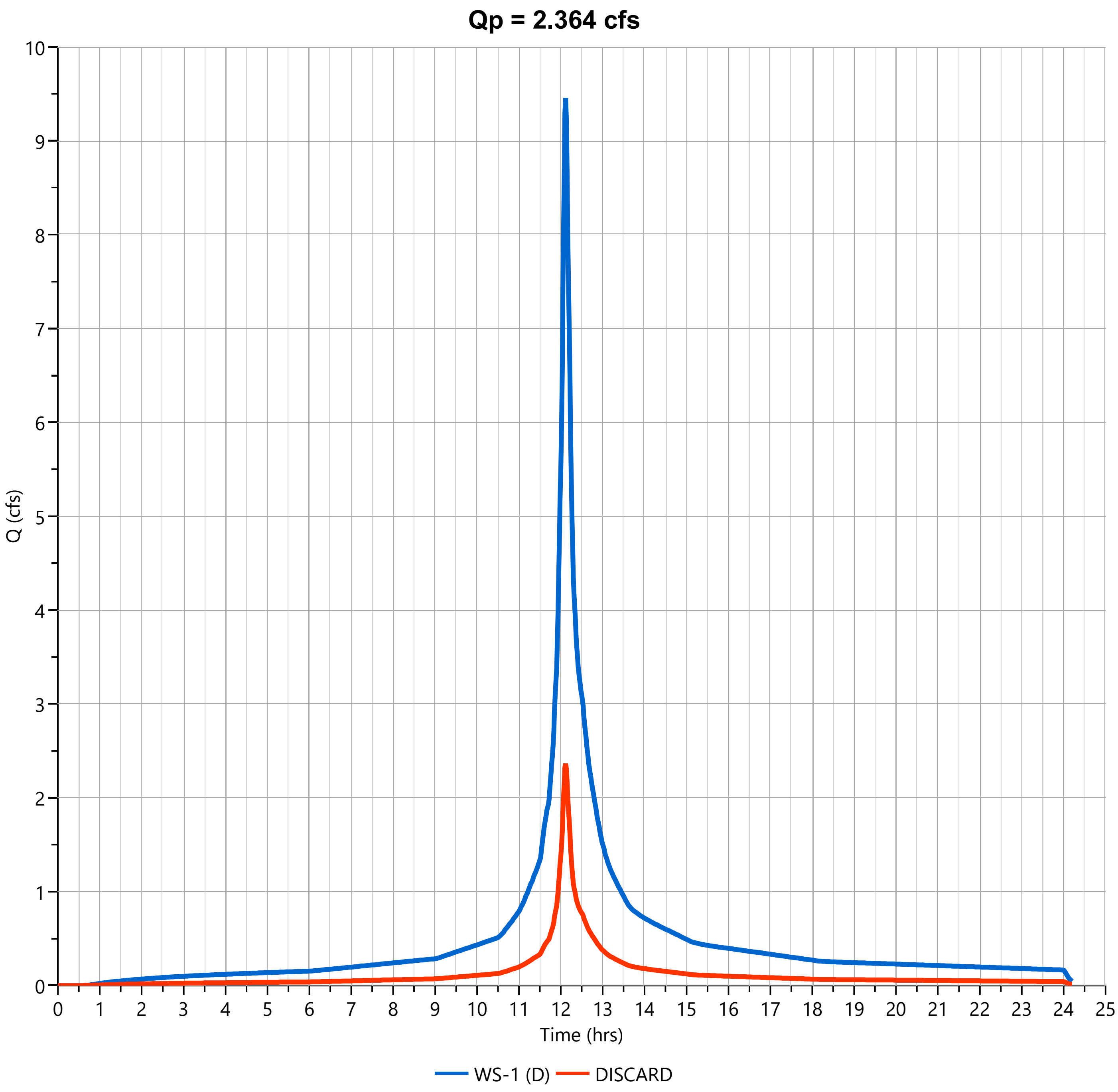
Hydrograph Type	= Diversion	Peak Flow	= 7.091 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 31,938 cuft
Inflow Hydrograph	= 3 - WS-1 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 5 - DISCARD	Flow Ratio	= 0.75



DISCARD

Hyd. No. 5

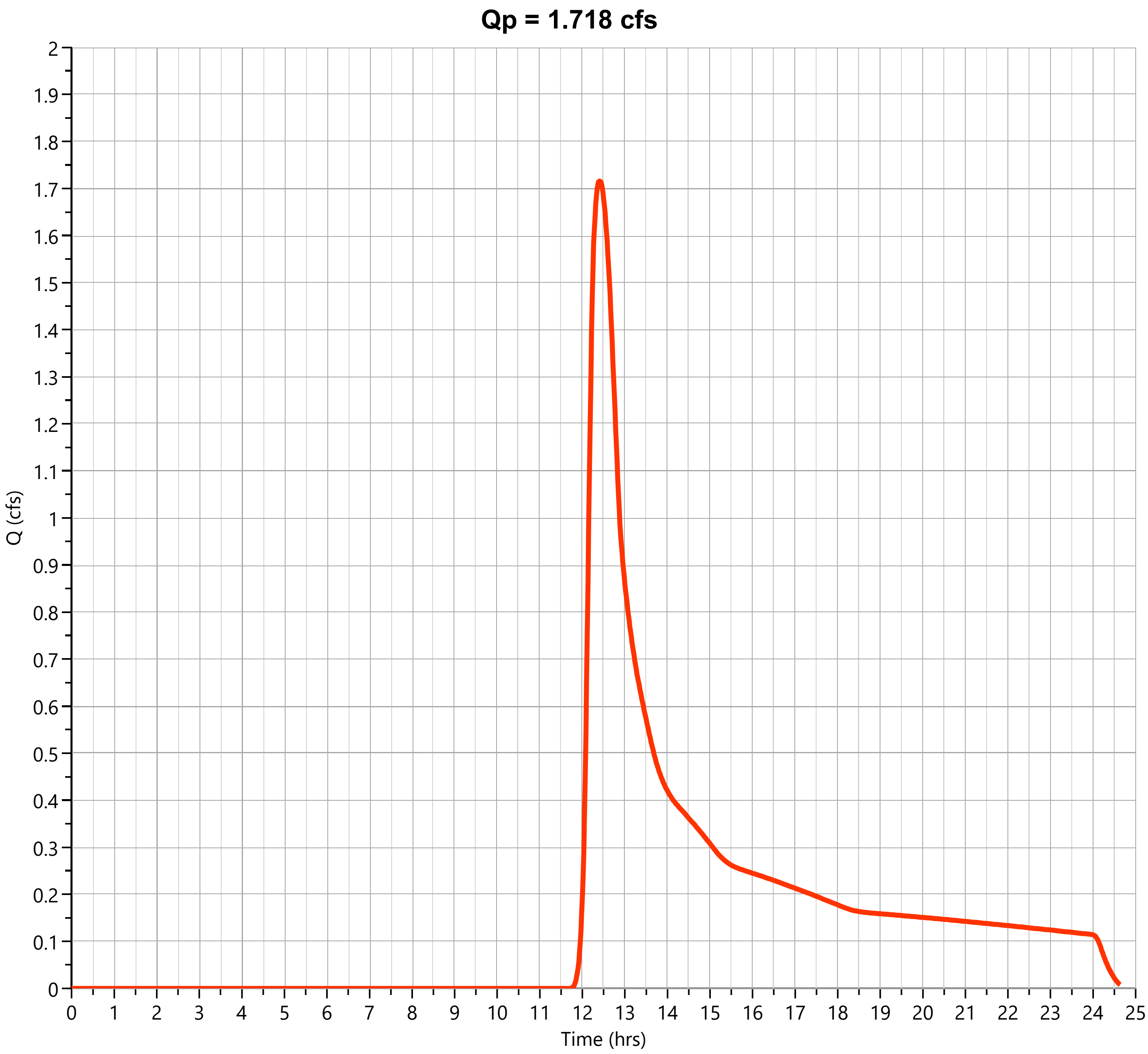
Hydrograph Type	= Diversion	Peak Flow	= 2.364 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 10,646 cuft
Inflow Hydrograph	= 3 - WS-1 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 4 - WS-1 REDUCED	Flow Ratio	= 0.75



WS-1 (U) (PER)

Hyd. No. 6

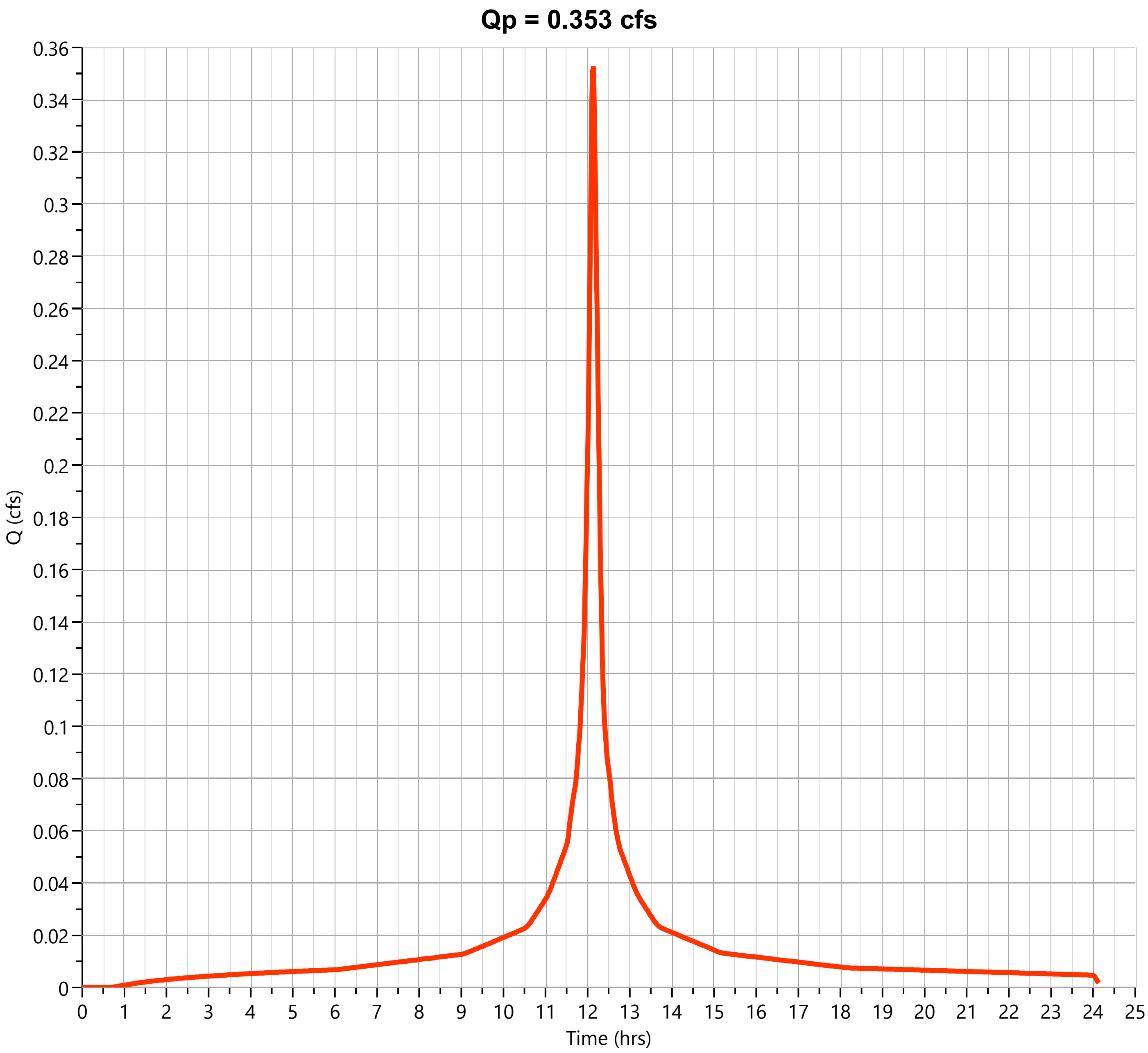
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.718 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.42 hrs
Time Interval	= 1 min	Runoff Volume	= 13,706 cuft
Drainage Area	= 3.54 ac	Curve Number	= 48.00
Tc Method	= User	Time of Conc. (Tc)	= 17.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (U) (IMP)

Hyd. No. 7

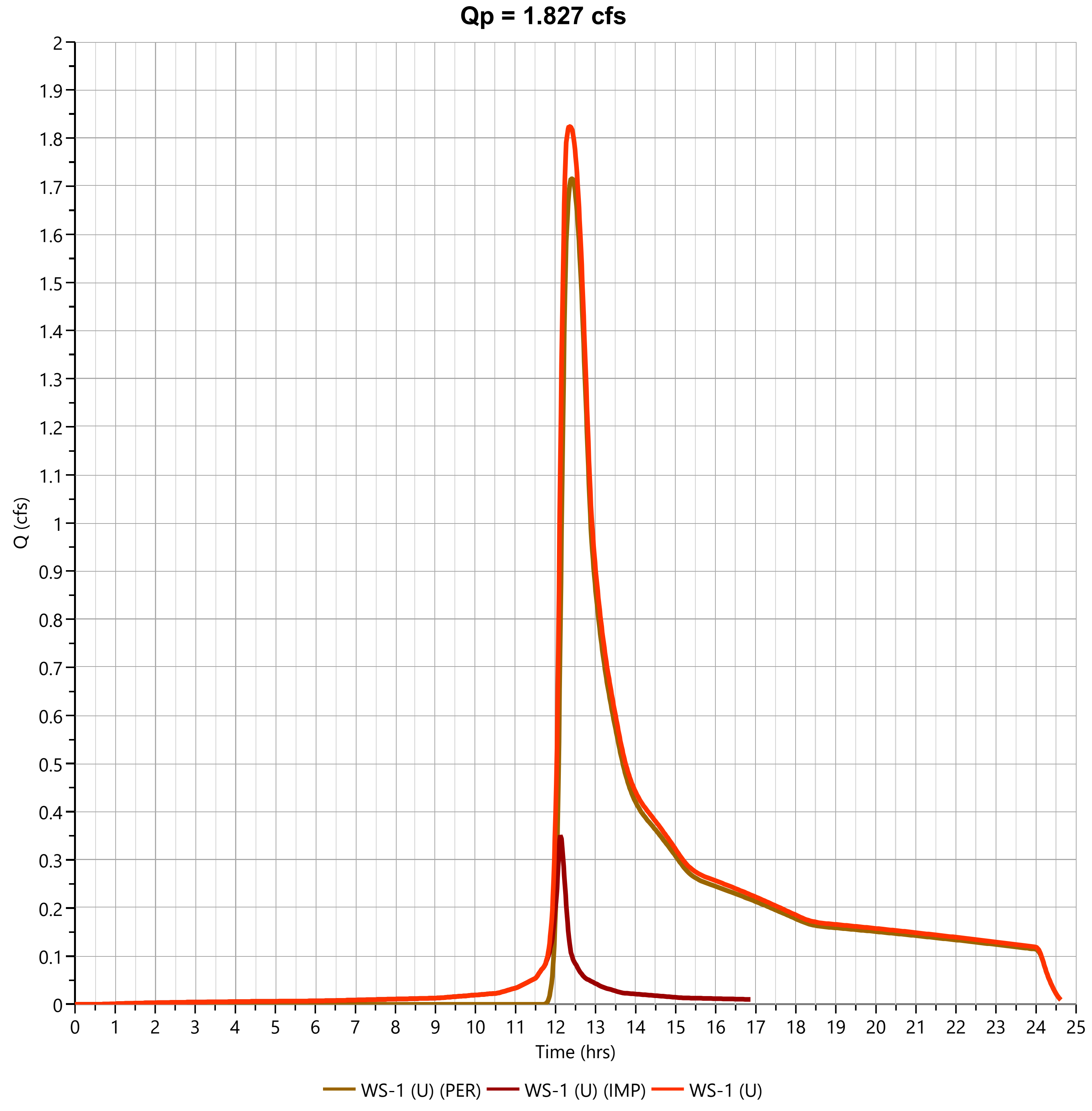
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.353 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Runoff Volume	= 1,485 cuft
Drainage Area	= 0.07 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (U)

Hyd. No. 8

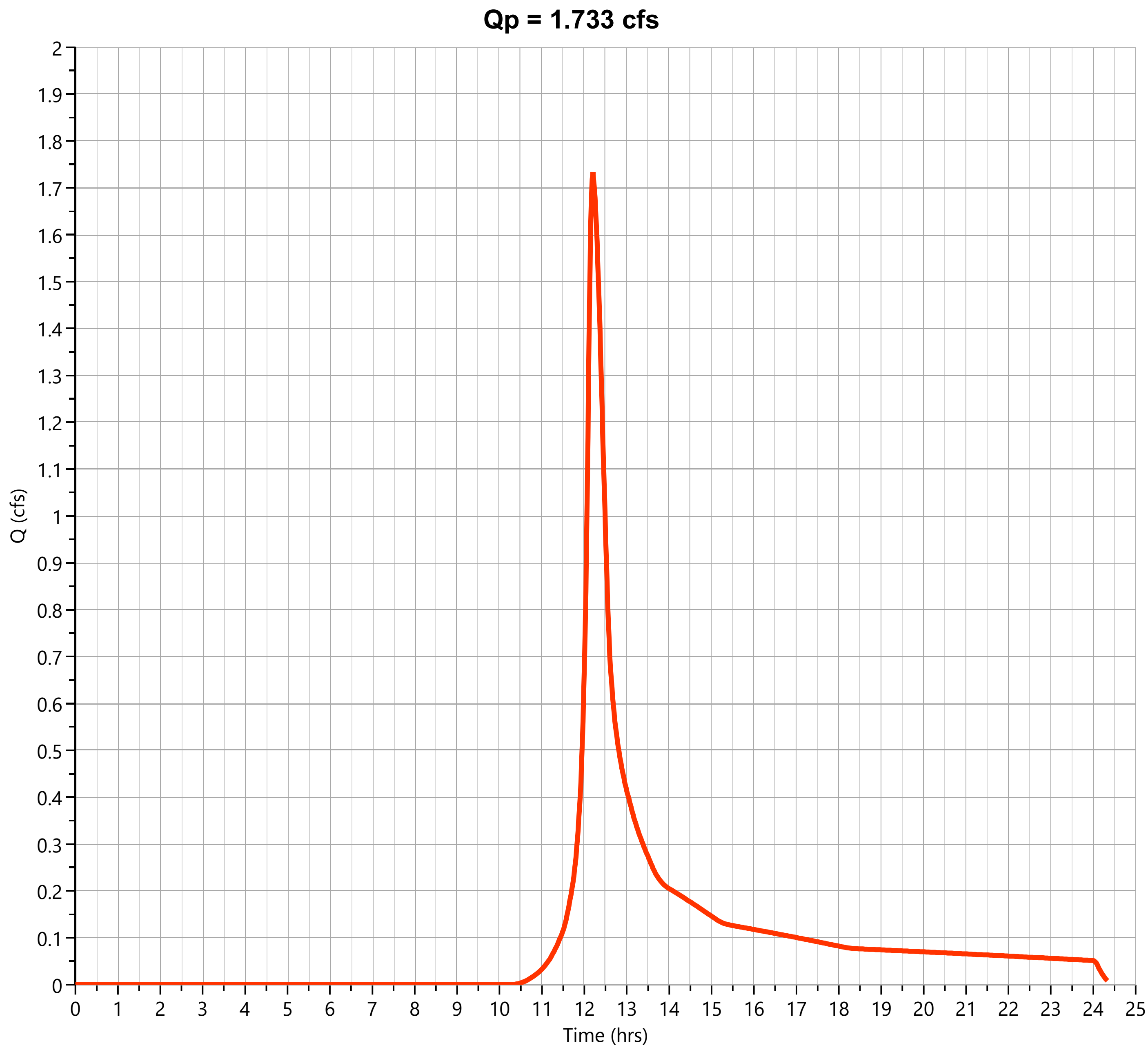
Hydrograph Type	= Junction	Peak Flow	= 1.827 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.35 hrs
Time Interval	= 1 min	Hydrograph Volume	= 15,191 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 3.61 ac



WS-2 (D) (PER)

Hyd. No. 9

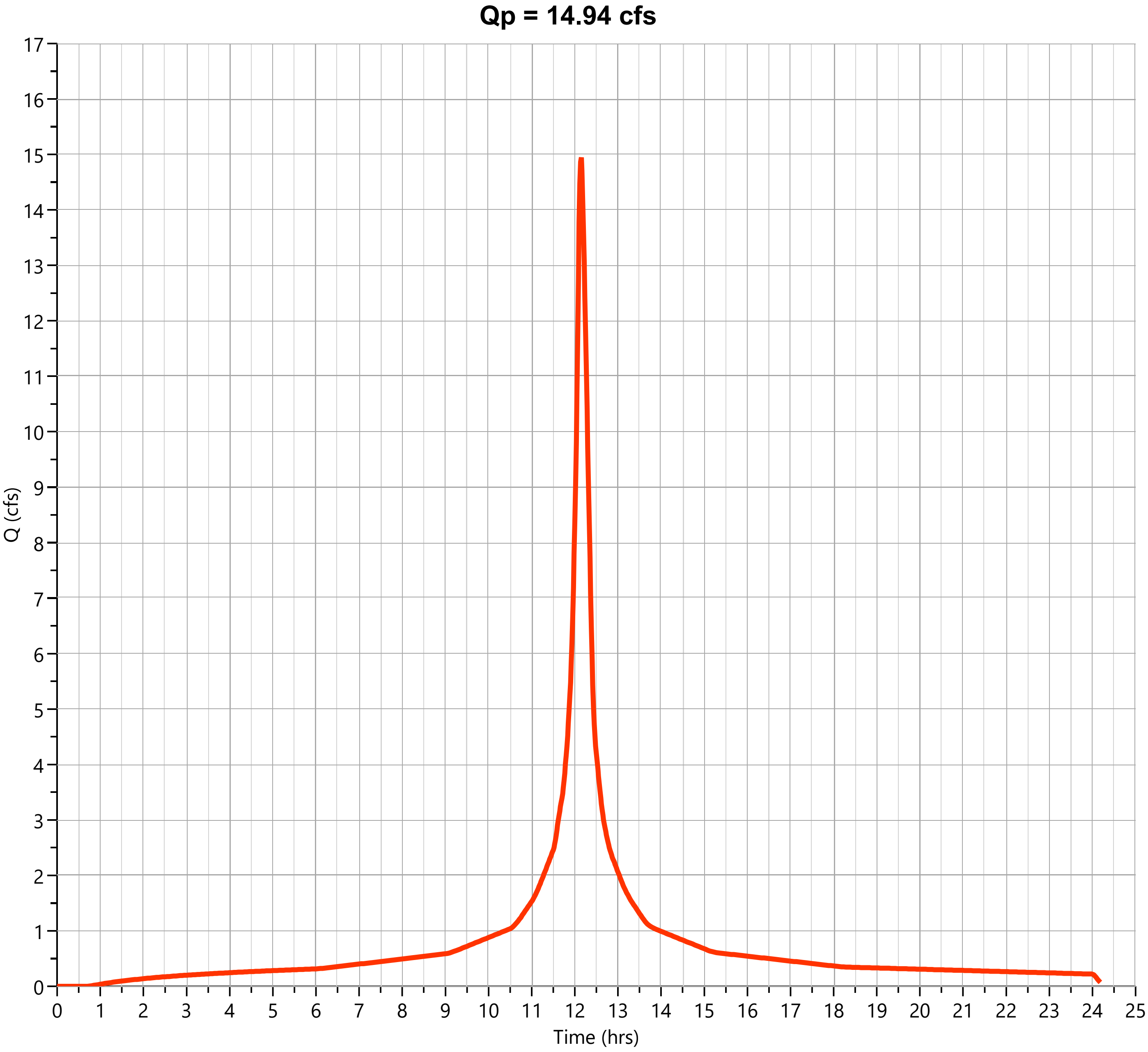
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.733 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.20 hrs
Time Interval	= 1 min	Runoff Volume	= 8,435 cuft
Drainage Area	= 1.1 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (D) (IMP)

Hyd. No. 10

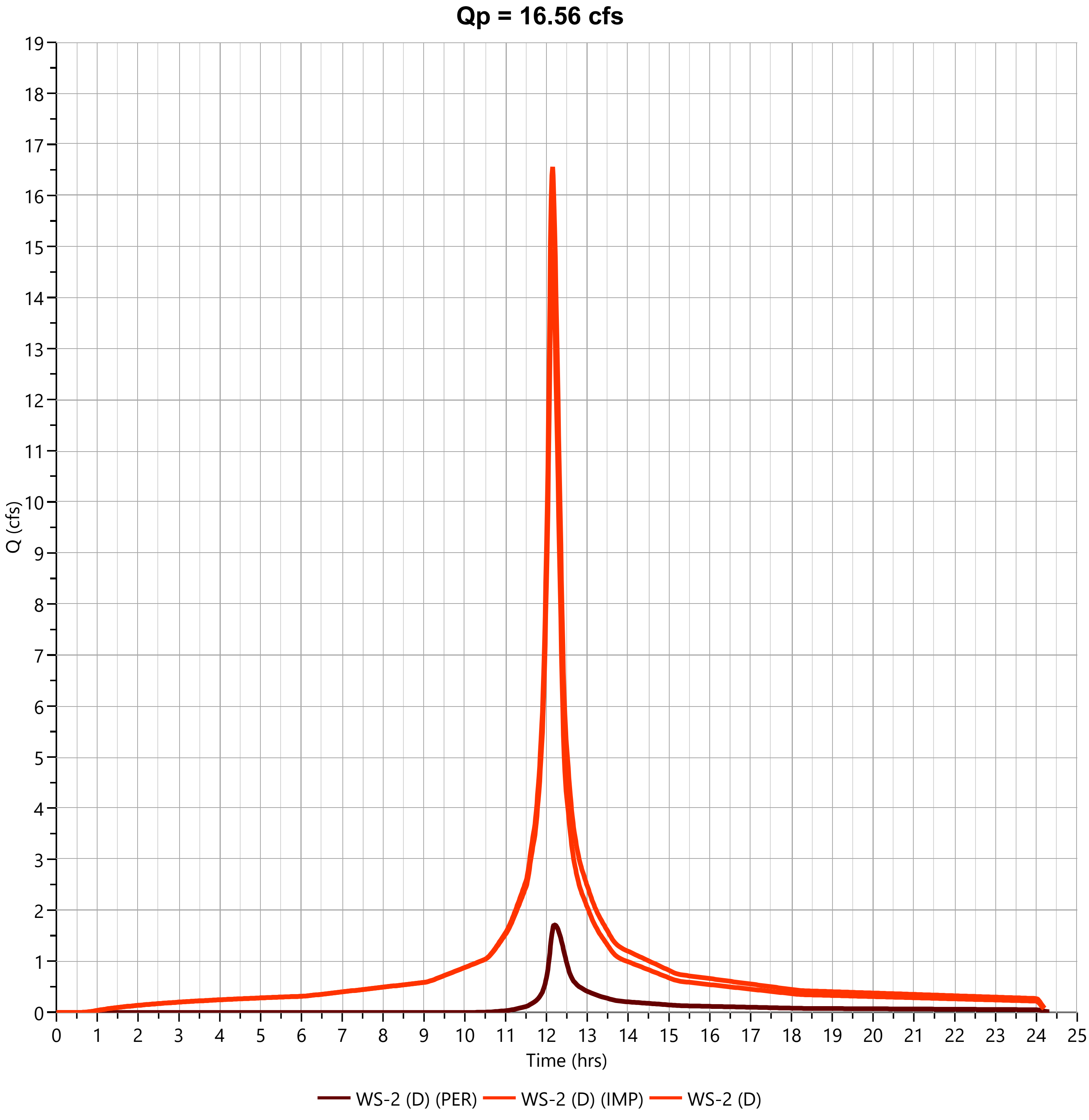
Hydrograph Type	= NRCS Runoff	Peak Flow	= 14.94 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Runoff Volume	= 68,961 cuft
Drainage Area	= 3.18 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 8.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (D)

Hyd. No. 11

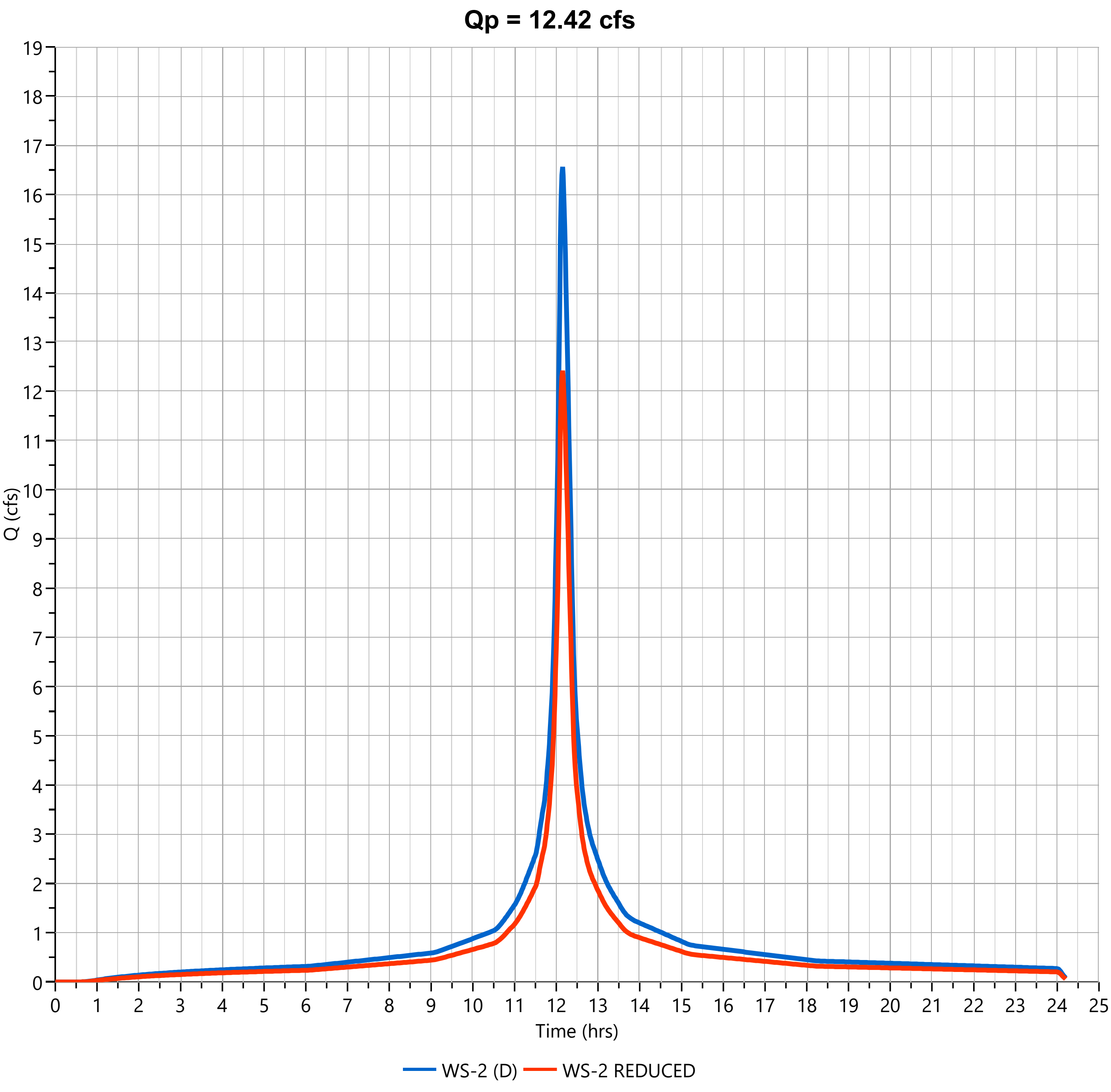
Hydrograph Type	= Junction	Peak Flow	= 16.56 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 77,396 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 4.28 ac



WS-2 REDUCED

Hyd. No. 12

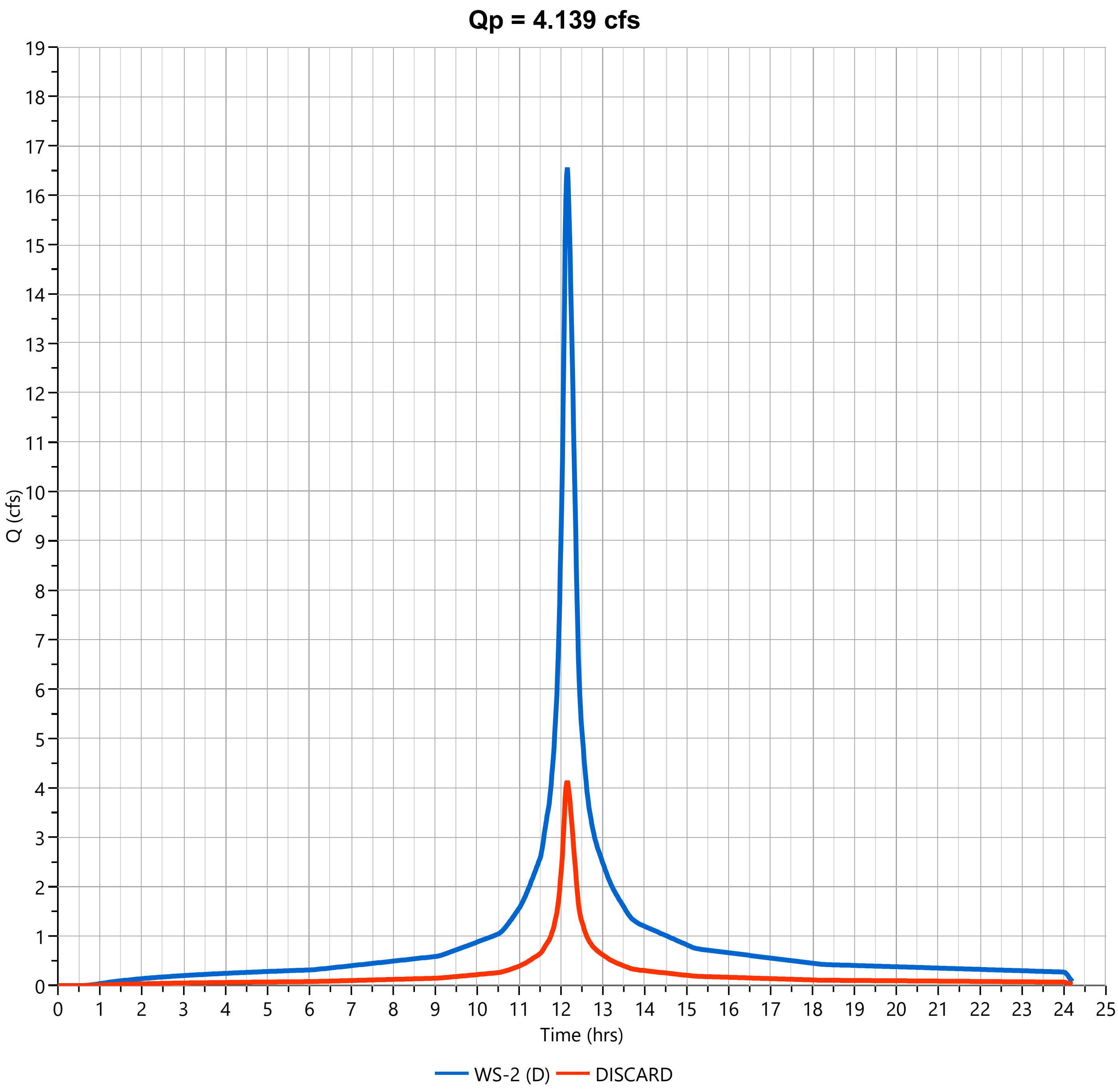
Hydrograph Type	= Diversion	Peak Flow	= 12.42 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 58,047 cuft
Inflow Hydrograph	= 11 - WS-2 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 13 - DISCARD	Flow Ratio	= 0.75



DISCARD

Hyd. No. 13

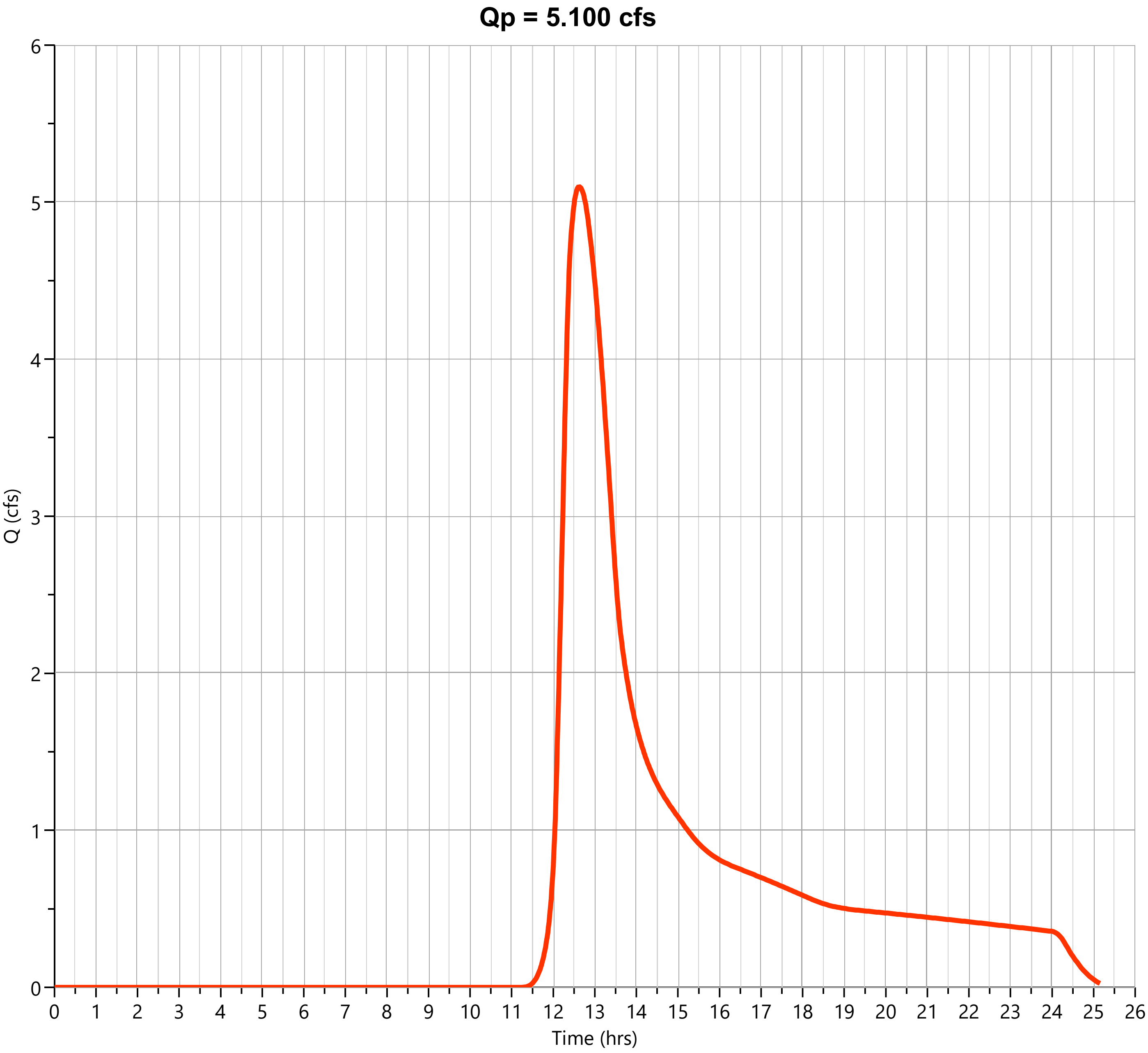
Hydrograph Type	= Diversion	Peak Flow	= 4.139 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 19,349 cuft
Inflow Hydrograph	= 11 - WS-2 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 12 - WS-2 REDUCED	Flow Ratio	= 0.75



WS-2 (U) (PER)

Hyd. No. 14

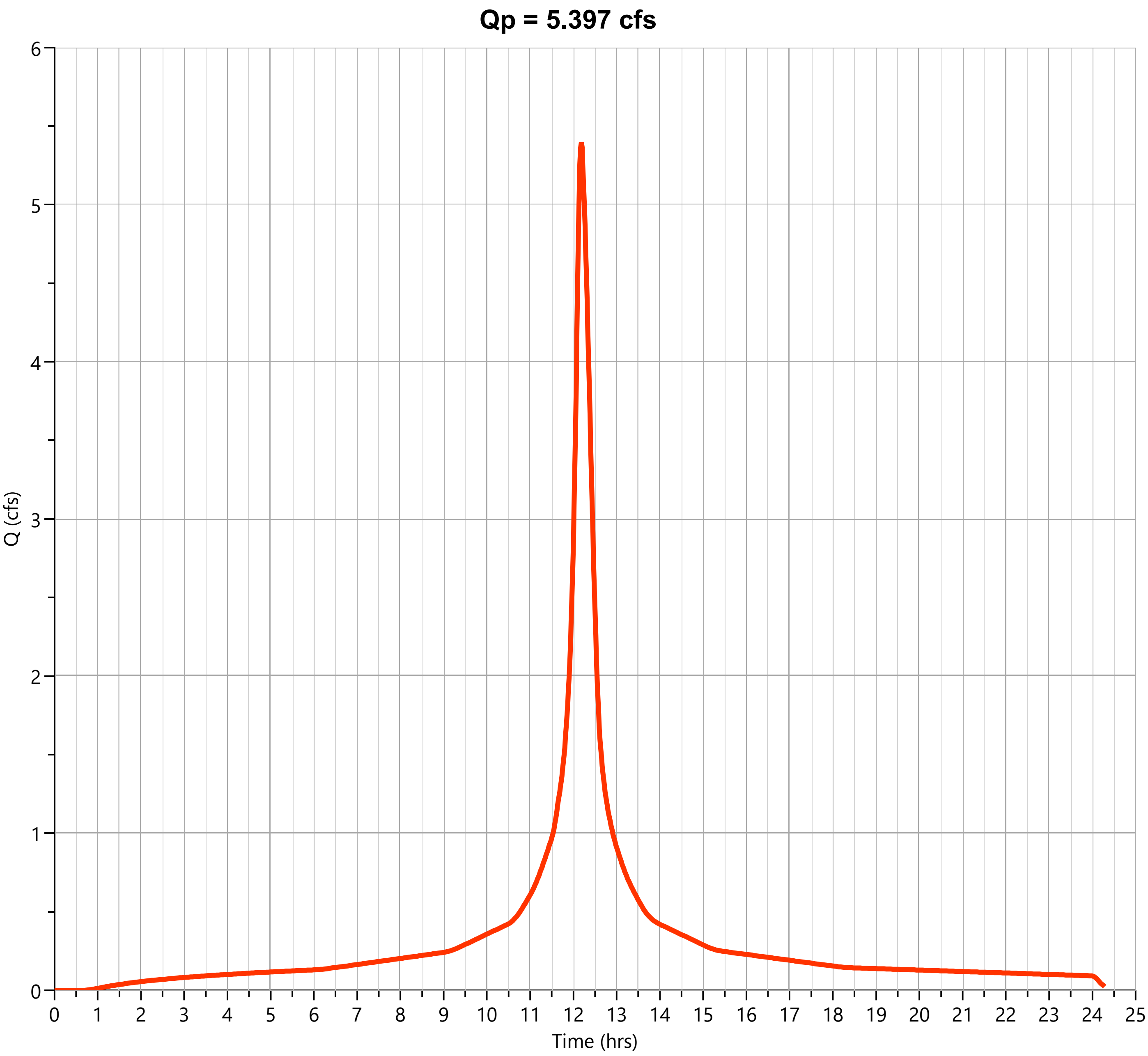
Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.100 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.62 hrs
Time Interval	= 1 min	Runoff Volume	= 48,649 cuft
Drainage Area	= 8.81 ac	Curve Number	= 54.00
Tc Method	= User	Time of Conc. (Tc)	= 33.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (U) (IMP)

Hyd. No. 15

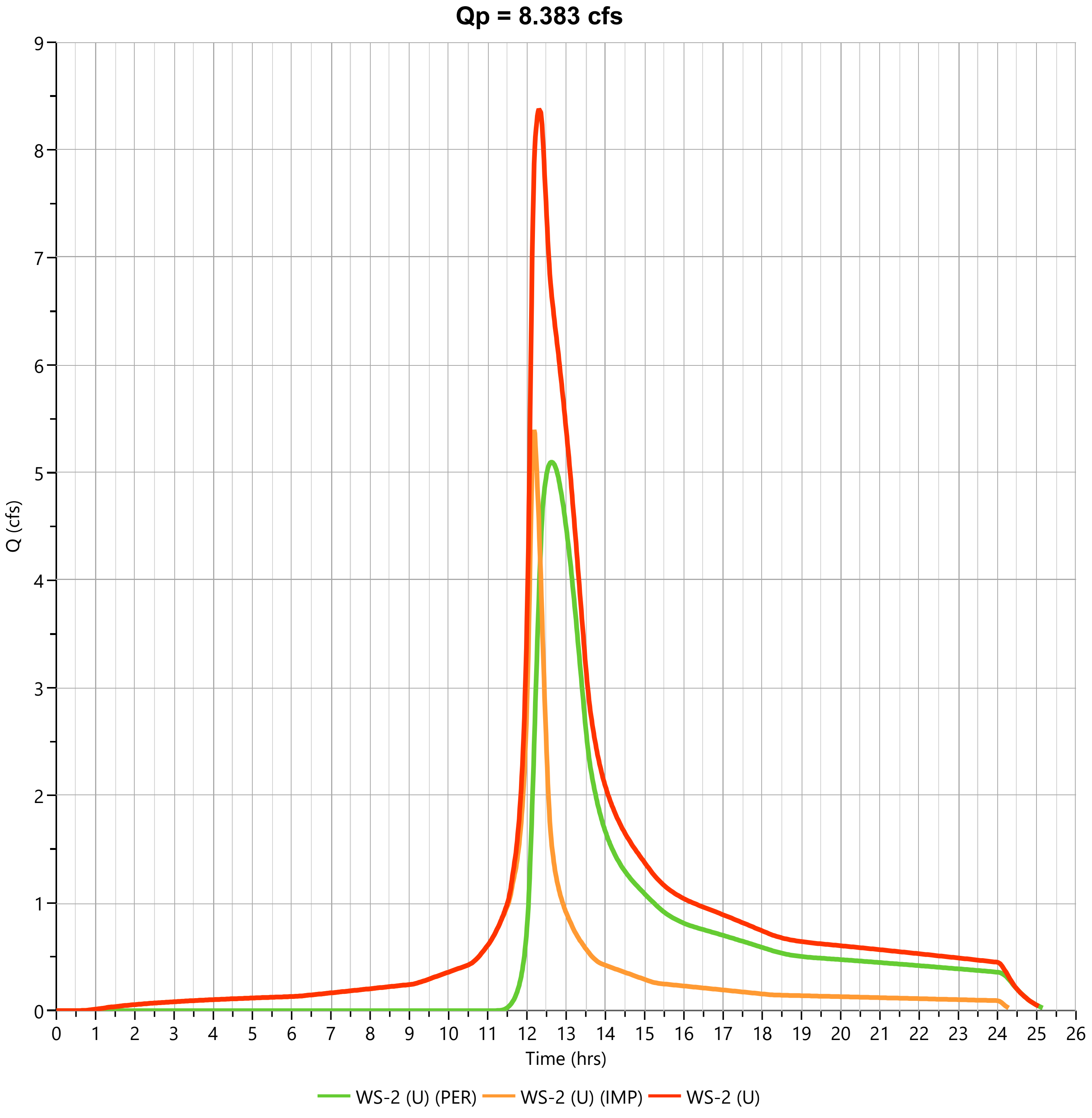
Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.397 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 28,663 cuft
Drainage Area	= 1.33 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (U)

Hyd. No. 16

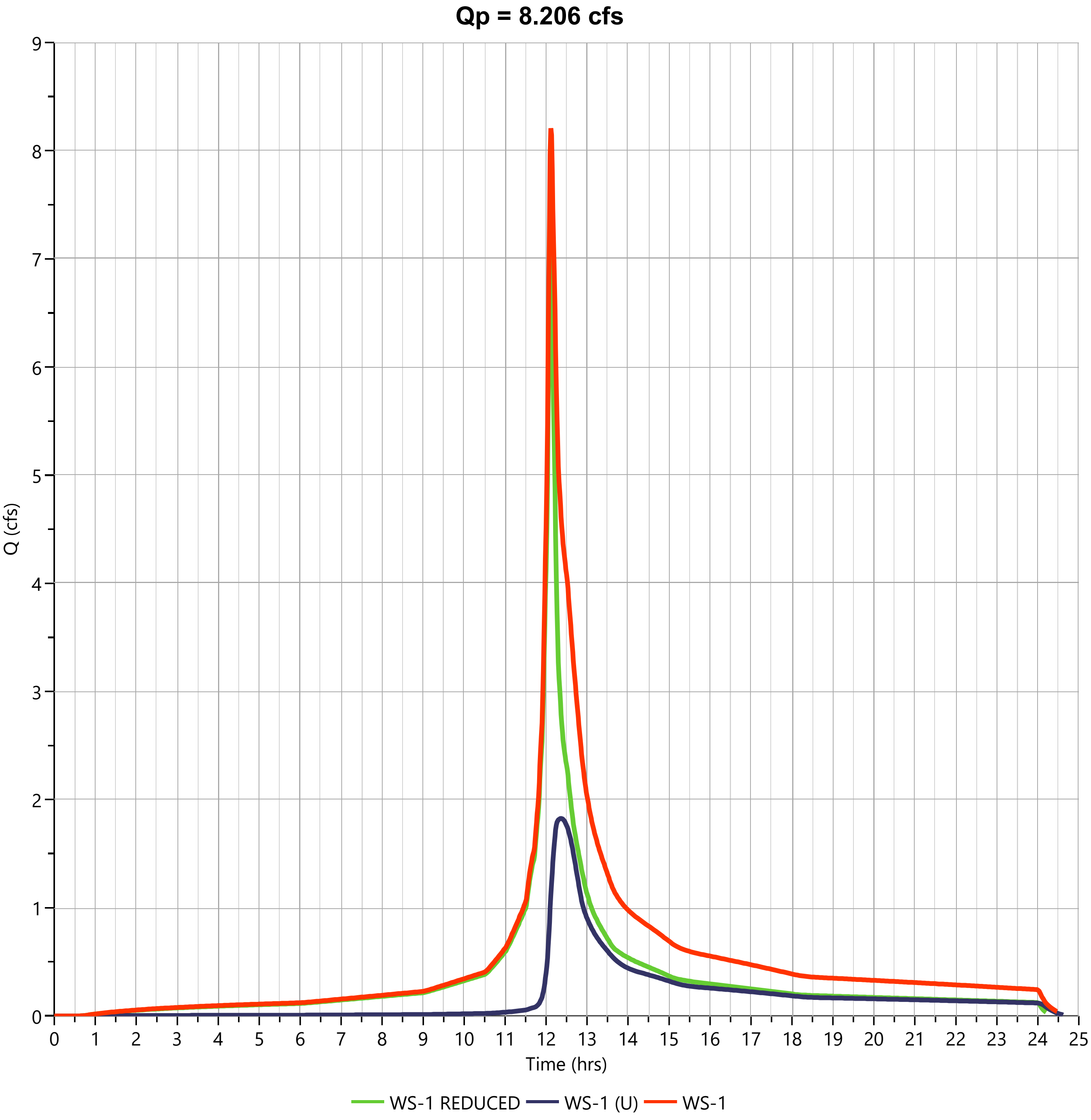
Hydrograph Type	= Junction	Peak Flow	= 8.383 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.32 hrs
Time Interval	= 1 min	Hydrograph Volume	= 77,312 cuft
Inflow Hydrographs	= 14, 15	Total Contrib. Area	= 10.14 ac



WS-1

Hyd. No. 17

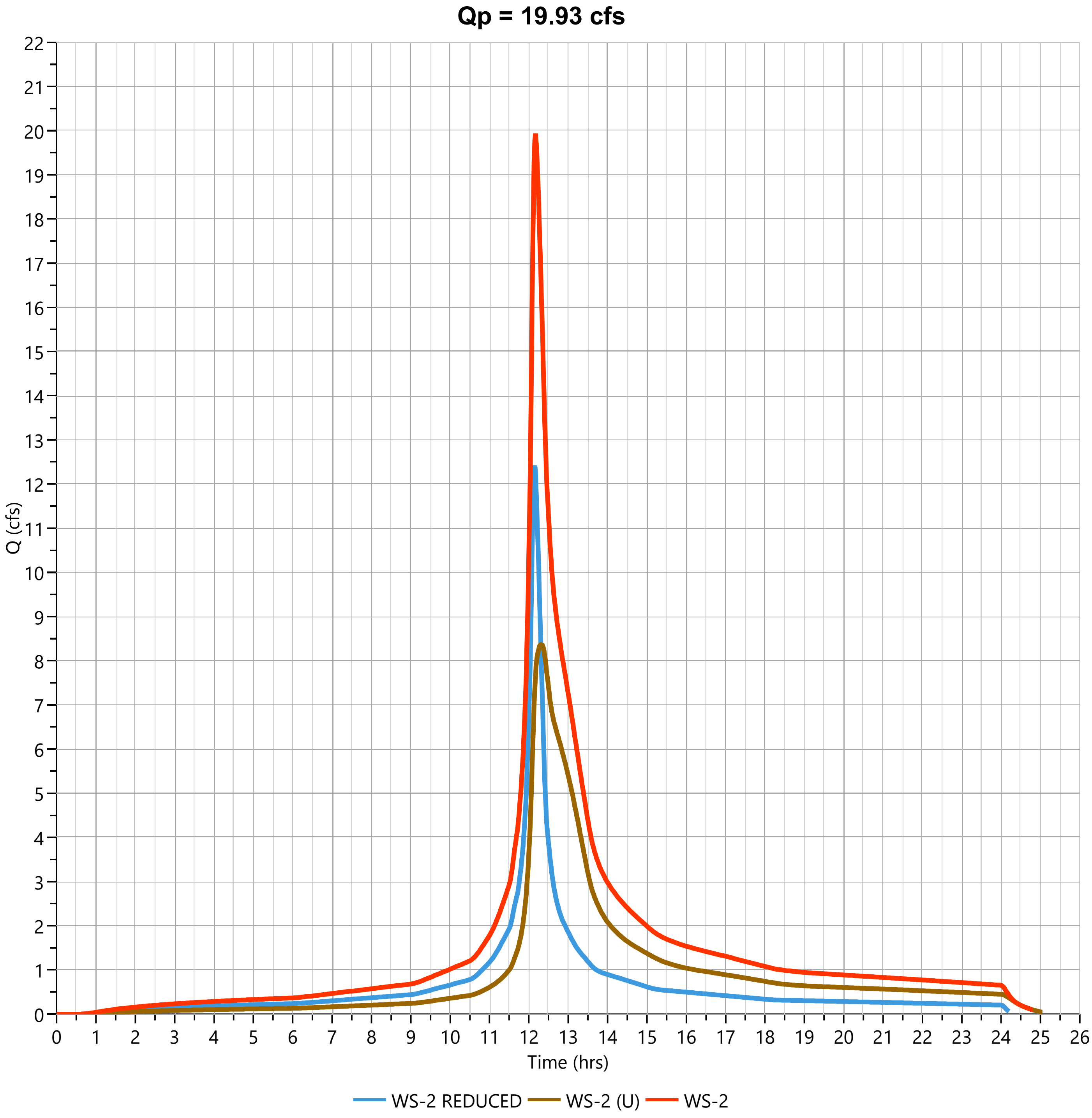
Hydrograph Type	= Junction	Peak Flow	= 8.206 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 47,129 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



WS-2

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 19.93 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 135,359 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



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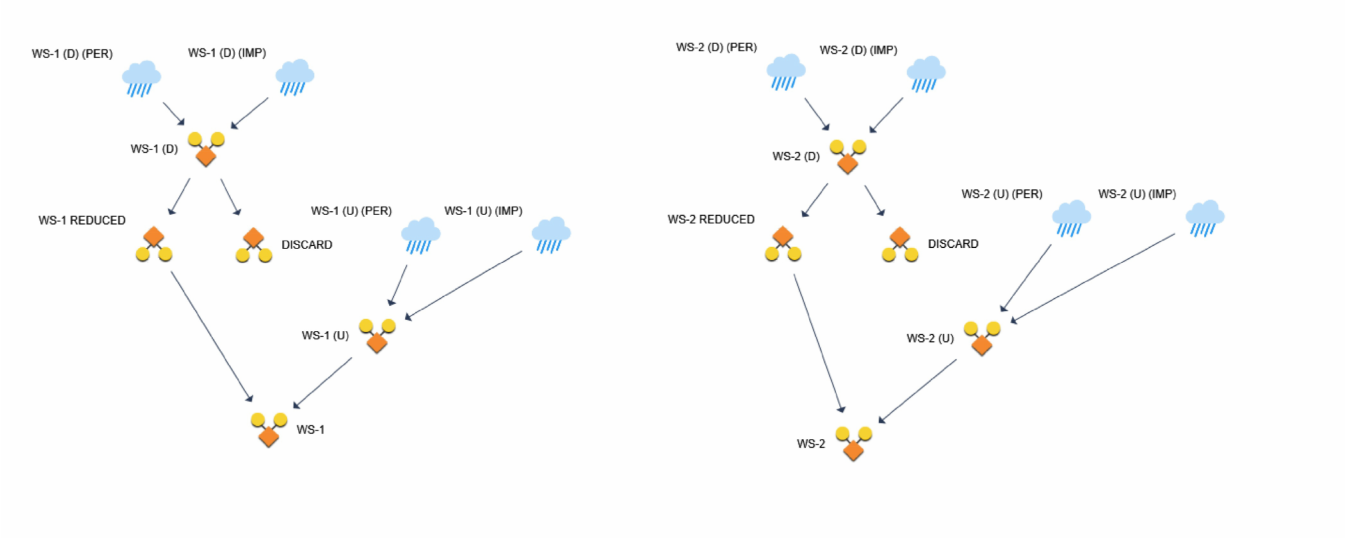
Basin Model

Hydrology Studio v 3.0.0.44

File: 102054601 - Future Existing.hys

07-23-2026


WS-1 (D) (PER)
WS-1 (D) (IMP)
WS-1 (D)
WS-1 REDUCED
DISCARD
WS-1 (U) (PER)
WS-1 (U) (IMP)
WS-1 (U)
WS-1
WS-2 (D) (PER)
WS-2 (D) (IMP)
WS-2 (D)
WS-2 REDUCED
DISCARD
WS-2 (U) (PER)
WS-2 (U) (IMP)
WS-2 (U)
WS-2

Hydrograph by Return Period

Hydrology Studio v 3.0.0.44

File: 102054601 - Future Existing.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	WS-1 (D) (PER)								4.358
2	NRCS Runoff	WS-1 (D) (IMP)								15.50
3	Junction	WS-1 (D)								18.49
4	Diversion1	WS-1 REDUCED								14.79
5	Diversion2	DISCARD								3.697
6	NRCS Runoff	WS-1 (U) (PER)								8.430
7	NRCS Runoff	WS-1 (U) (IMP)								0.637
8	Junction	WS-1 (U)								8.782
9	NRCS Runoff	WS-2 (D) (PER)								5.115
10	NRCS Runoff	WS-2 (D) (IMP)								26.99
11	Junction	WS-2 (D)								31.88
12	Diversion1	WS-2 REDUCED								25.51
13	Diversion2	DISCARD								6.377
14	NRCS Runoff	WS-2 (U) (PER)								18.80
15	NRCS Runoff	WS-2 (U) (IMP)								9.751
16	Junction	WS-2 (U)								24.79
17	Junction	WS-1								21.21
18	Junction	WS-2								46.15

Hydrograph 100-yr Summary

Hydrology Studio v 3.0.0.44

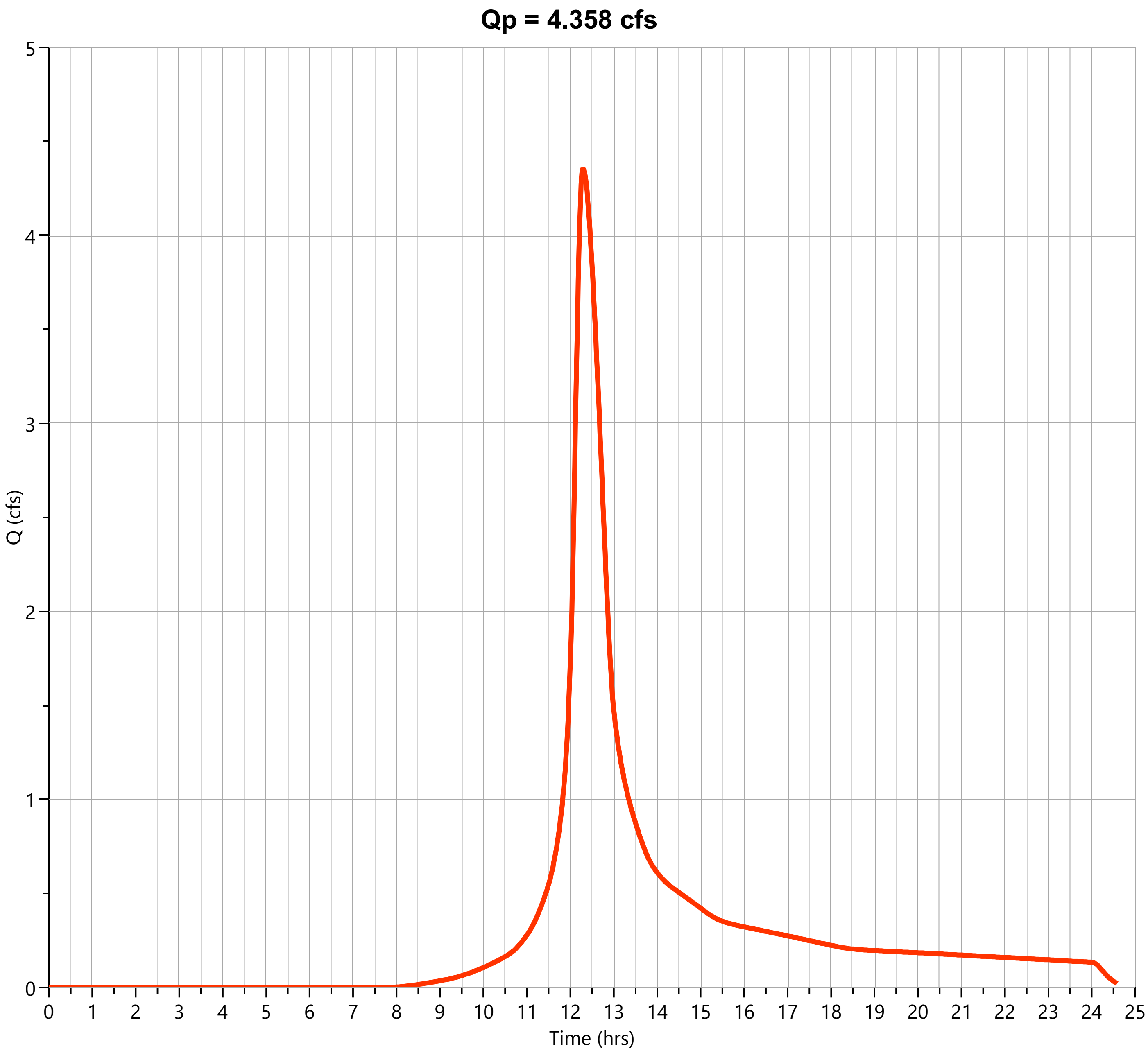
File: 102054601 - Future Existing.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	WS-1 (D) (PER)	4.358	12.28	26,843	----		
2	NRCS Runoff	WS-1 (D) (IMP)	15.50	12.12	60,910	----		
3	Junction	WS-1 (D)	18.49	12.12	87,753	1, 2		
4	Diversion1	WS-1 REDUCED	14.79	12.12	70,202	3		
5	Diversion2	DISCARD	3.697	12.12	17,551	3		
6	NRCS Runoff	WS-1 (U) (PER)	8.430	12.30	51,556	----		
7	NRCS Runoff	WS-1 (U) (IMP)	0.637	12.13	2,723	----		
8	Junction	WS-1 (U)	8.782	12.27	54,279	6, 7		
9	NRCS Runoff	WS-2 (D) (PER)	5.115	12.20	23,768	----		
10	NRCS Runoff	WS-2 (D) (IMP)	26.99	12.15	126,441	----		
11	Junction	WS-2 (D)	31.88	12.15	150,209	9, 10		
12	Diversion1	WS-2 REDUCED	25.51	12.15	120,167	11		
13	Diversion2	DISCARD	6.377	12.15	30,042	11		
14	NRCS Runoff	WS-2 (U) (PER)	18.80	12.52	156,876	----		
15	NRCS Runoff	WS-2 (U) (IMP)	9.751	12.18	52,554	----		
16	Junction	WS-2 (U)	24.79	12.37	209,430	14, 15		
17	Junction	WS-1	21.21	12.13	124,481	4, 8		
18	Junction	WS-2	46.15	12.17	329,597	12, 16		

WS-1 (D) (PER)

Hyd. No. 1

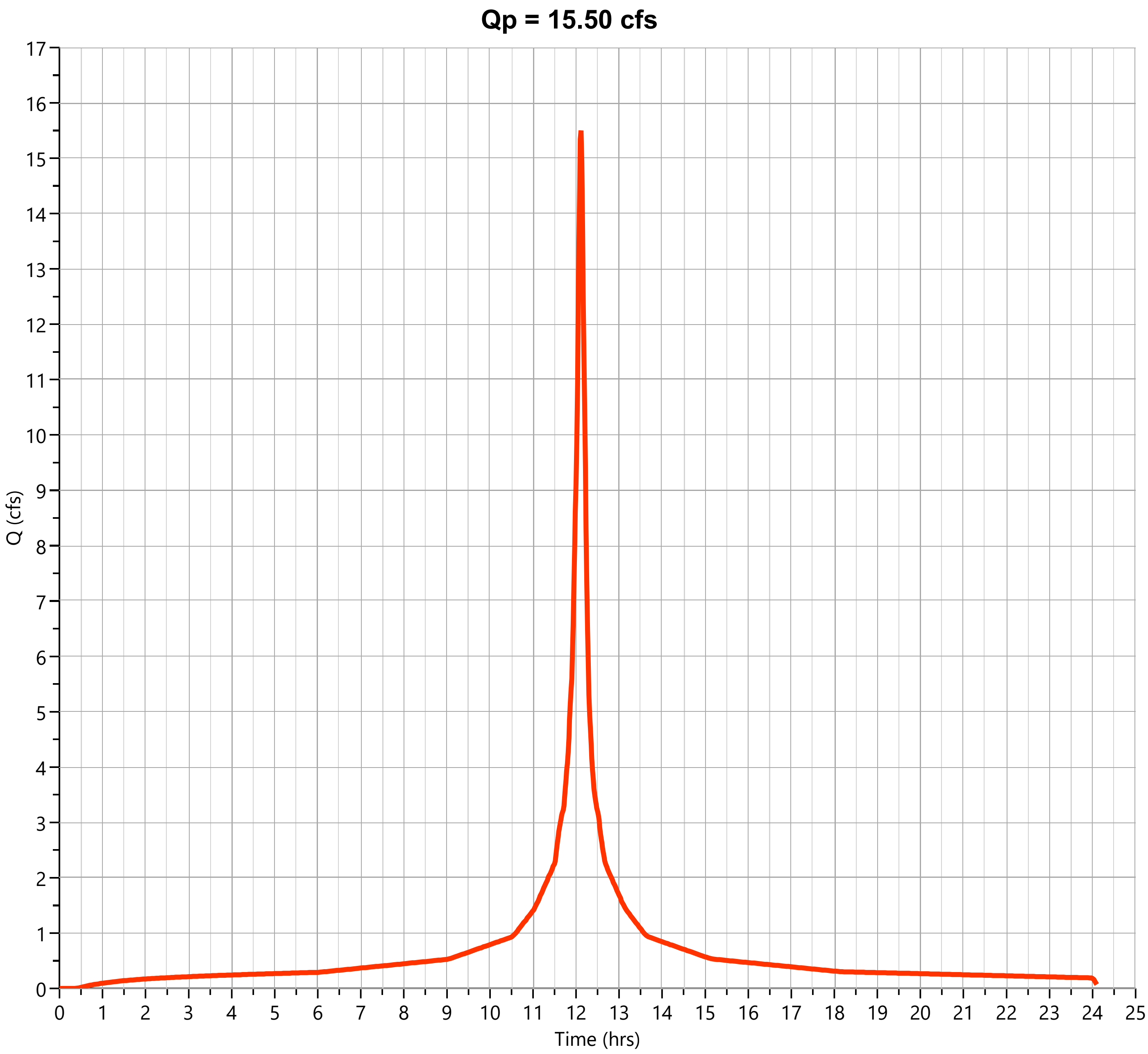
Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.358 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.28 hrs
Time Interval	= 1 min	Runoff Volume	= 26,843 cuft
Drainage Area	= 1.27 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 19.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (D) (IMP)

Hyd. No. 2

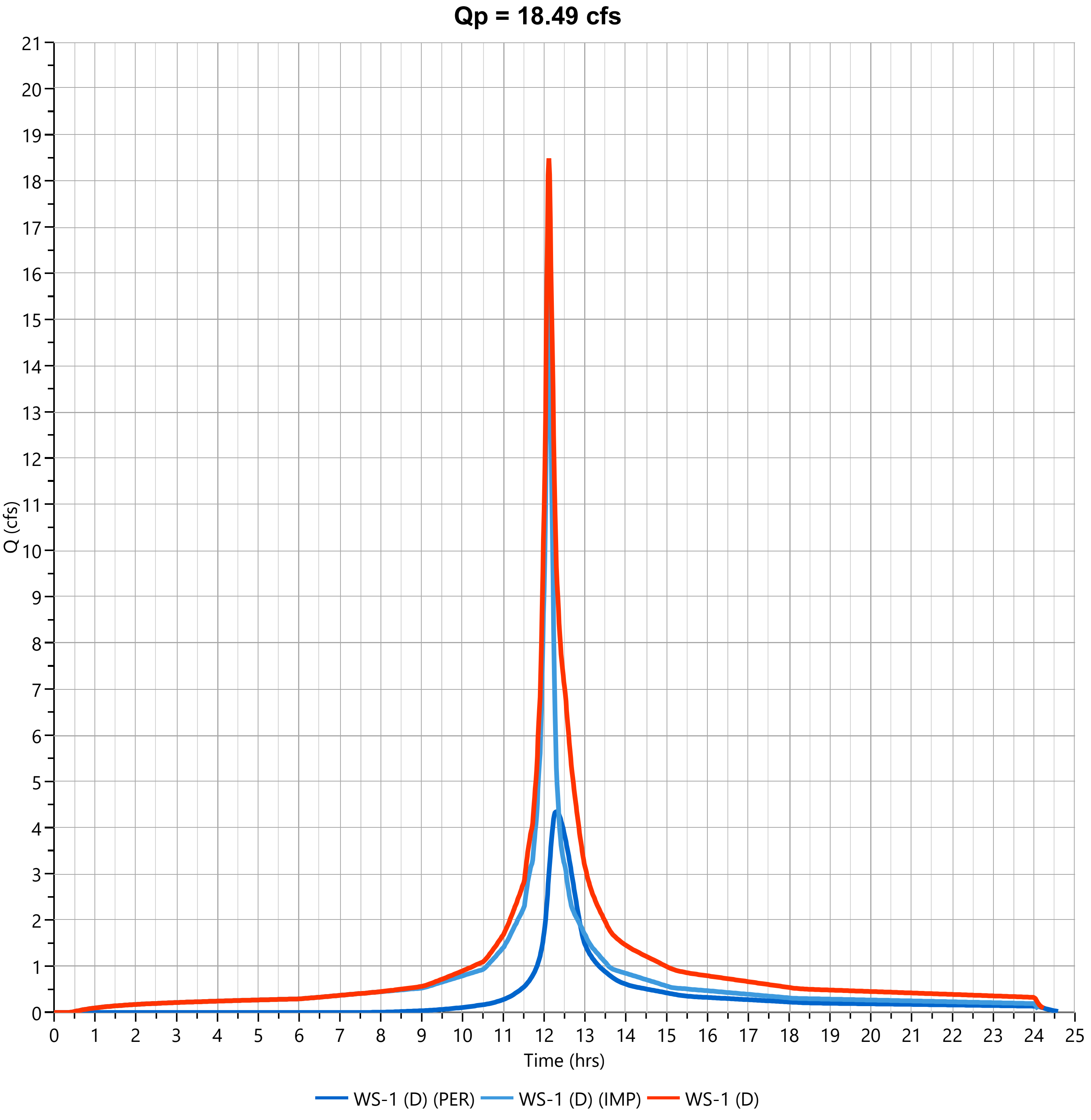
Hydrograph Type	= NRCS Runoff	Peak Flow	= 15.50 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Runoff Volume	= 60,910 cuft
Drainage Area	= 1.51 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 4.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (D)

Hyd. No. 3

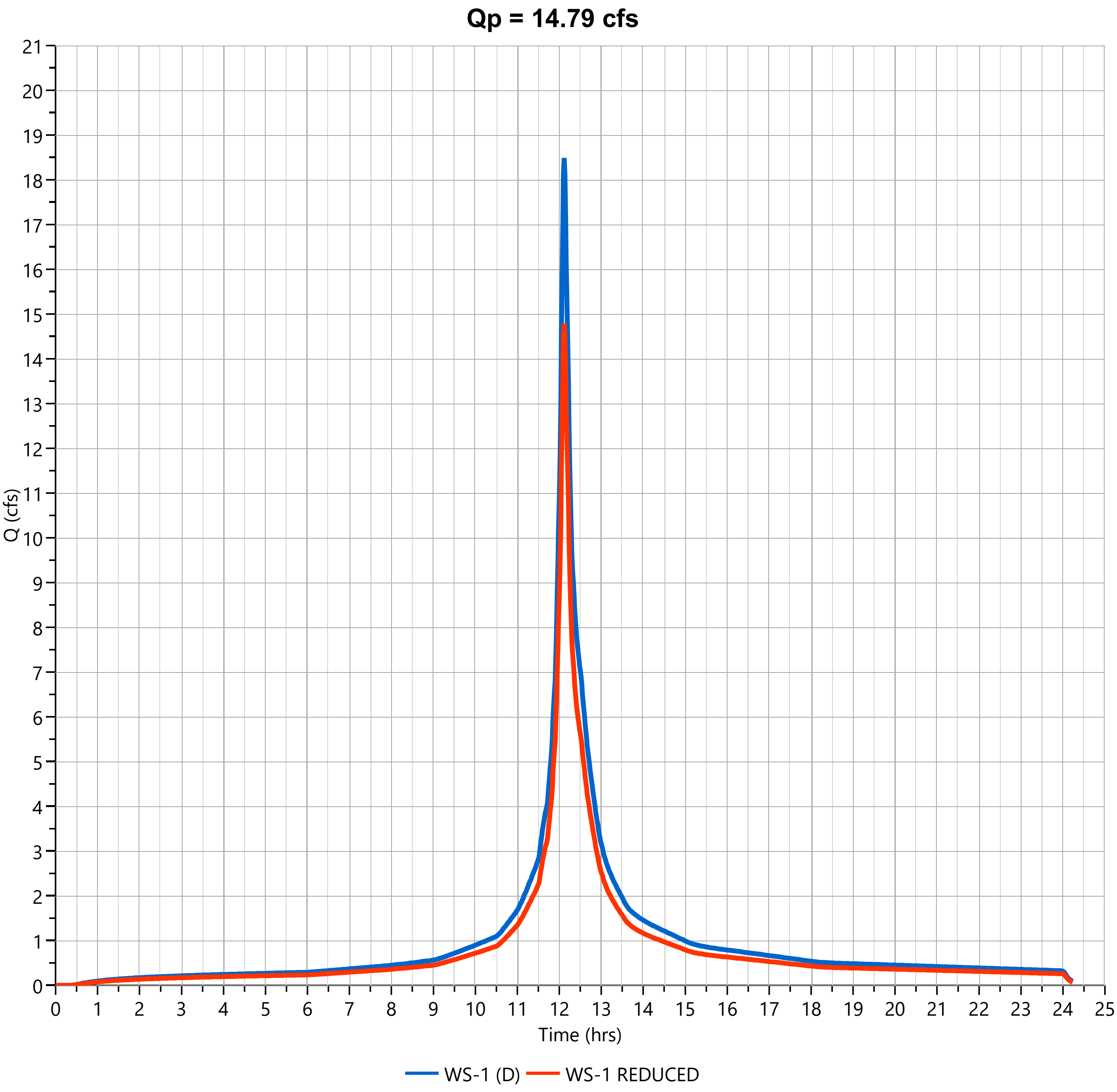
Hydrograph Type	= Junction	Peak Flow	= 18.49 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 87,753 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 2.78 ac



WS-1 REDUCED

Hyd. No. 4

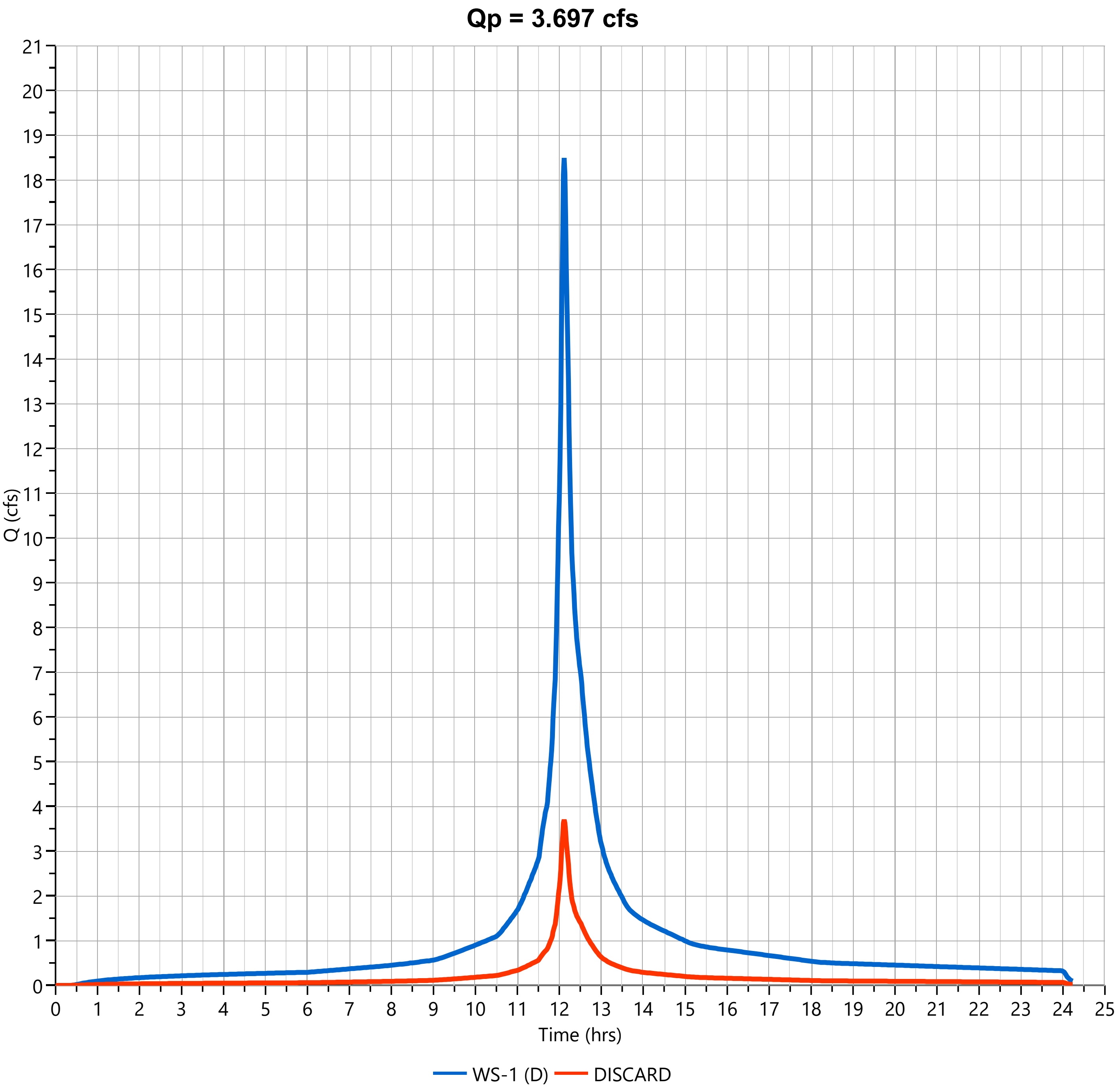
Hydrograph Type	= Diversion	Peak Flow	= 14.79 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 70,202 cuft
Inflow Hydrograph	= 3 - WS-1 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 5 - DISCARD	Flow Ratio	= 0.8



DISCARD

Hyd. No. 5

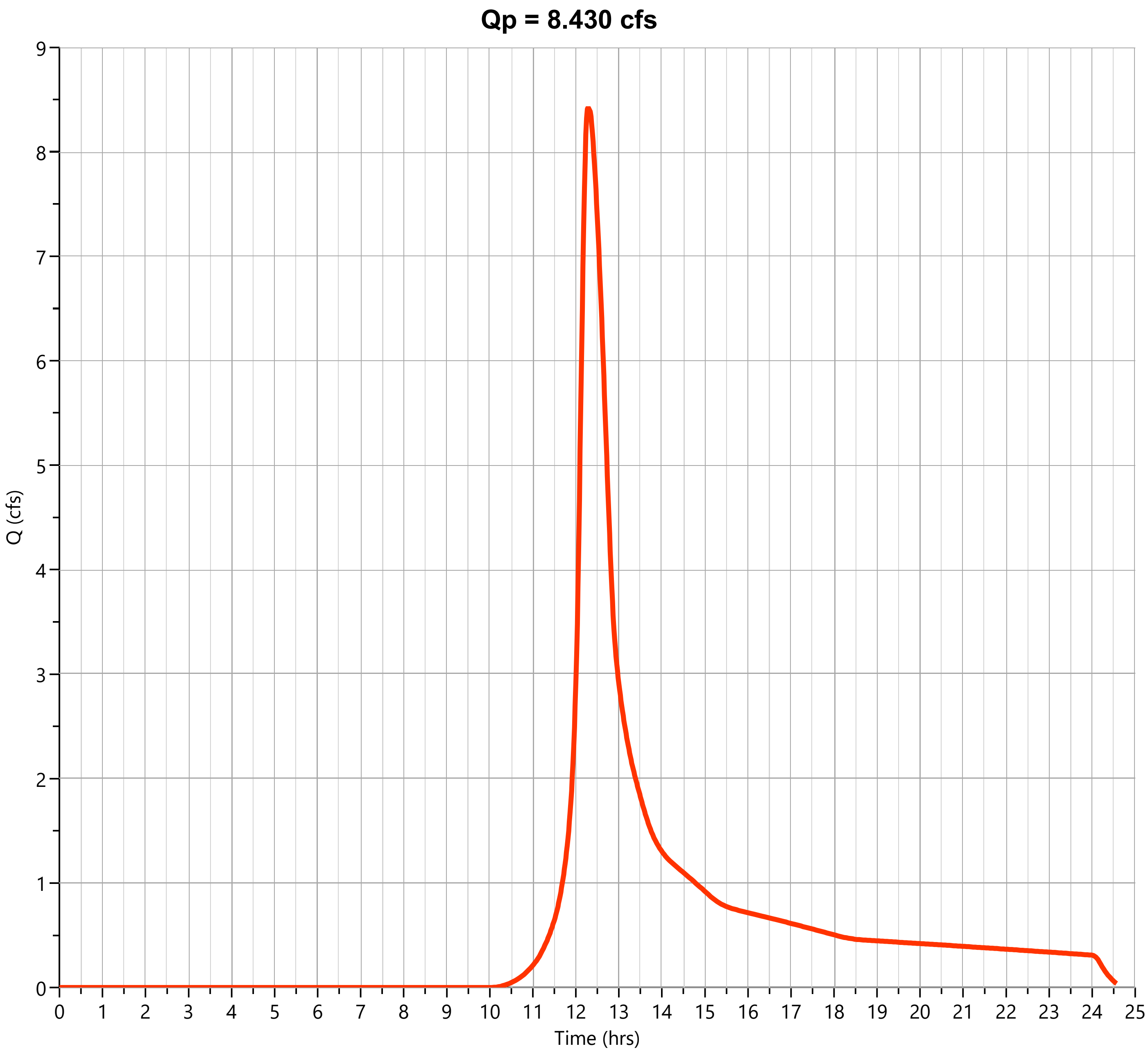
Hydrograph Type	= Diversion	Peak Flow	= 3.697 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Hydrograph Volume	= 17,551 cuft
Inflow Hydrograph	= 3 - WS-1 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 4 - WS-1 REDUCED	Flow Ratio	= 0.8



WS-1 (U) (PER)

Hyd. No. 6

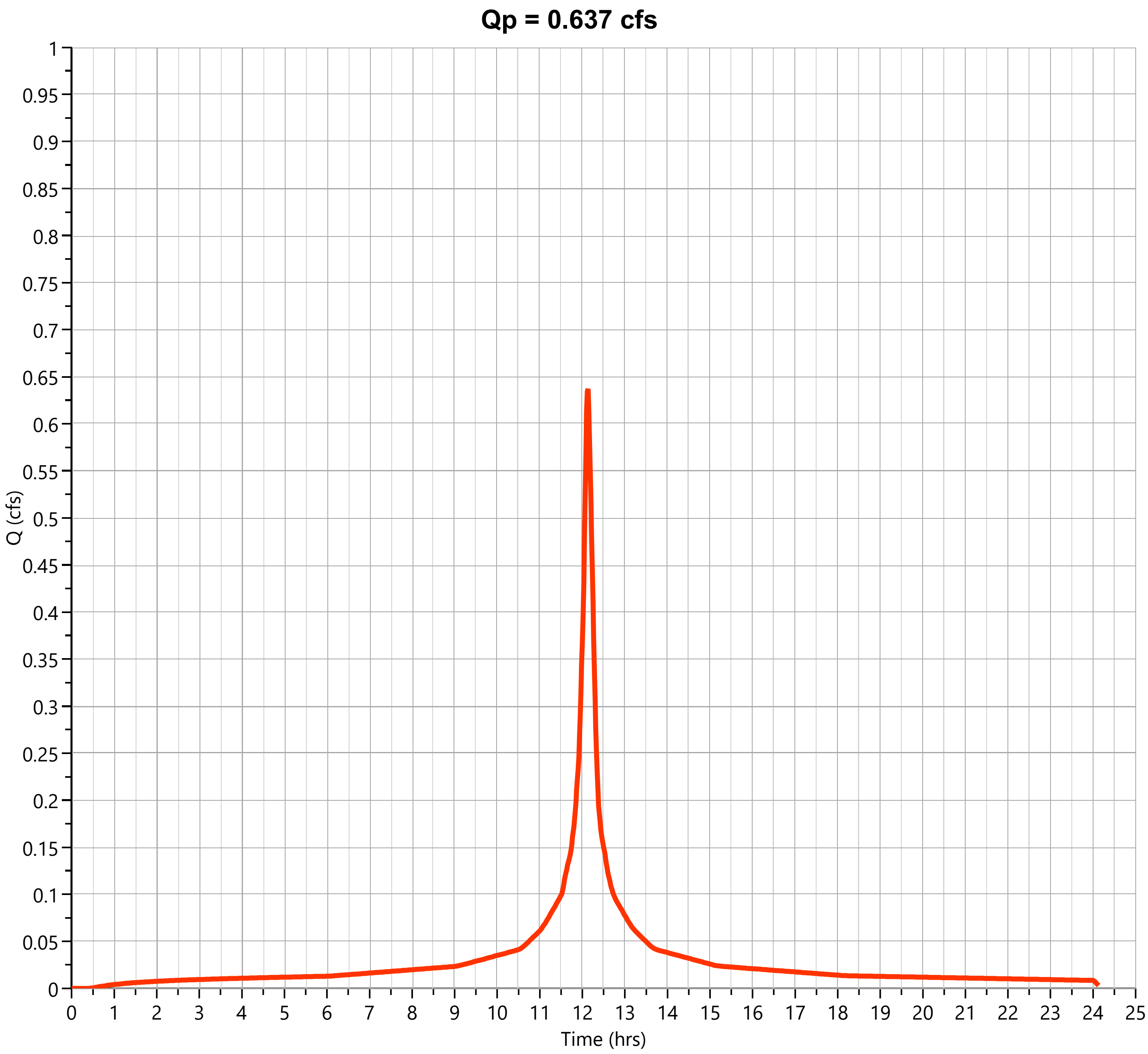
Hydrograph Type	= NRCS Runoff	Peak Flow	= 8.430 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.30 hrs
Time Interval	= 1 min	Runoff Volume	= 51,556 cuft
Drainage Area	= 3.54 ac	Curve Number	= 48.00
Tc Method	= User	Time of Conc. (Tc)	= 17.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (U) (IMP)

Hyd. No. 7

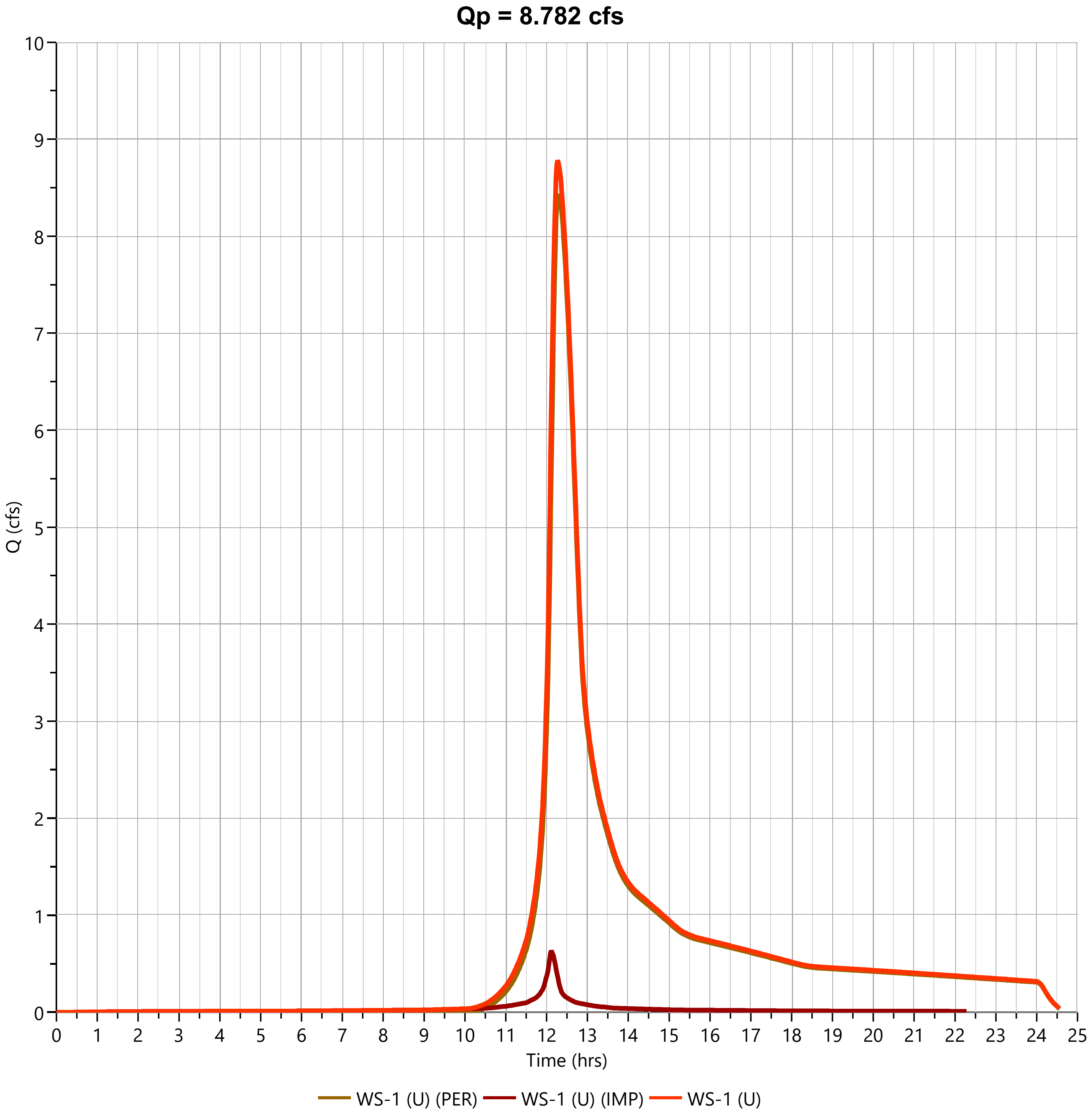
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.637 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Runoff Volume	= 2,723 cuft
Drainage Area	= 0.07 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-1 (U)

Hyd. No. 8

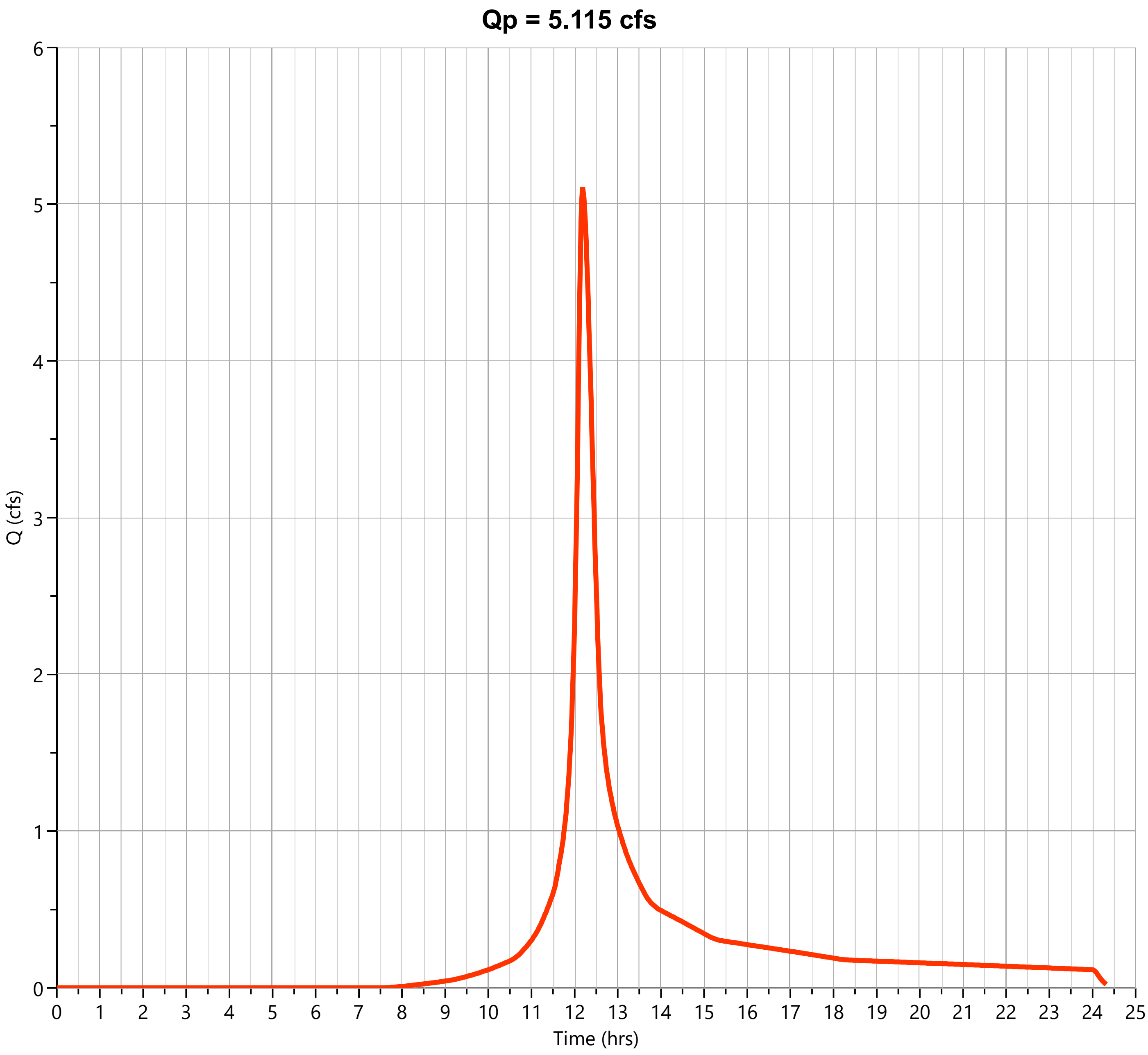
Hydrograph Type	= Junction	Peak Flow	= 8.782 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.27 hrs
Time Interval	= 1 min	Hydrograph Volume	= 54,279 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 3.61 ac



WS-2 (D) (PER)

Hyd. No. 9

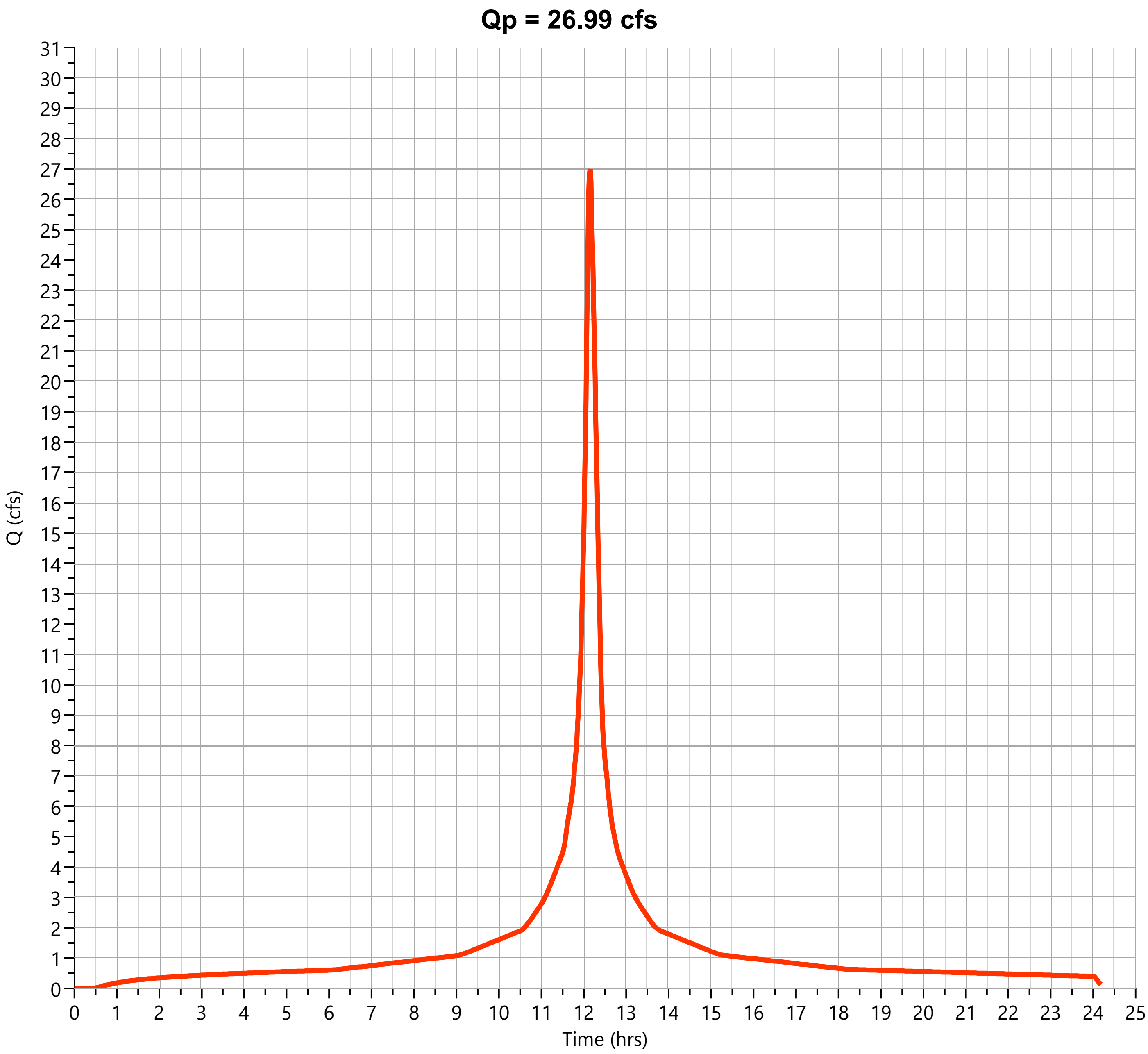
Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.115 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 1 min	Runoff Volume	= 23,768 cuft
Drainage Area	= 1.1 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (D) (IMP)

Hyd. No. 10

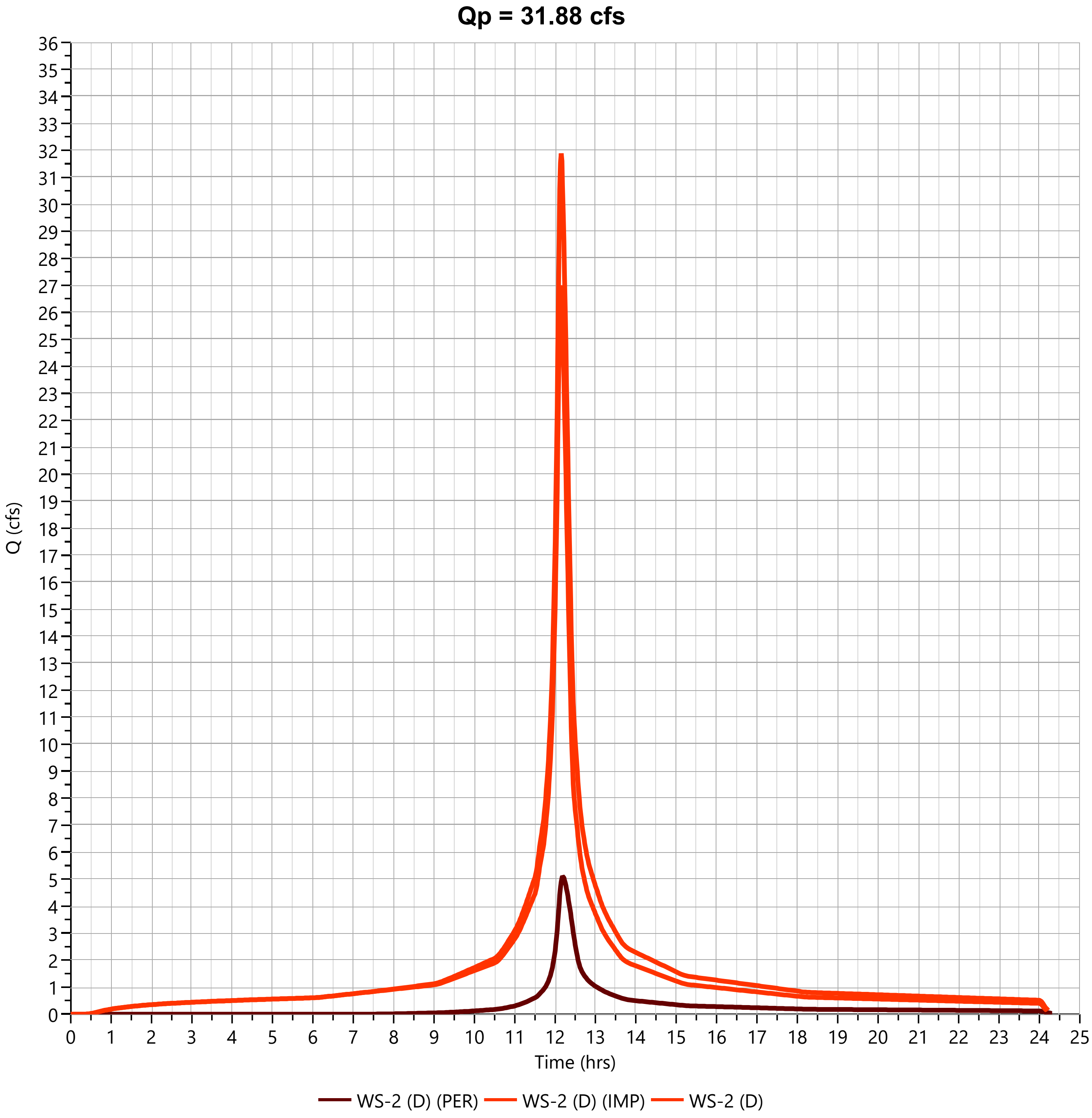
Hydrograph Type	= NRCS Runoff	Peak Flow	= 26.99 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Runoff Volume	= 126,441 cuft
Drainage Area	= 3.18 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 8.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (D)

Hyd. No. 11

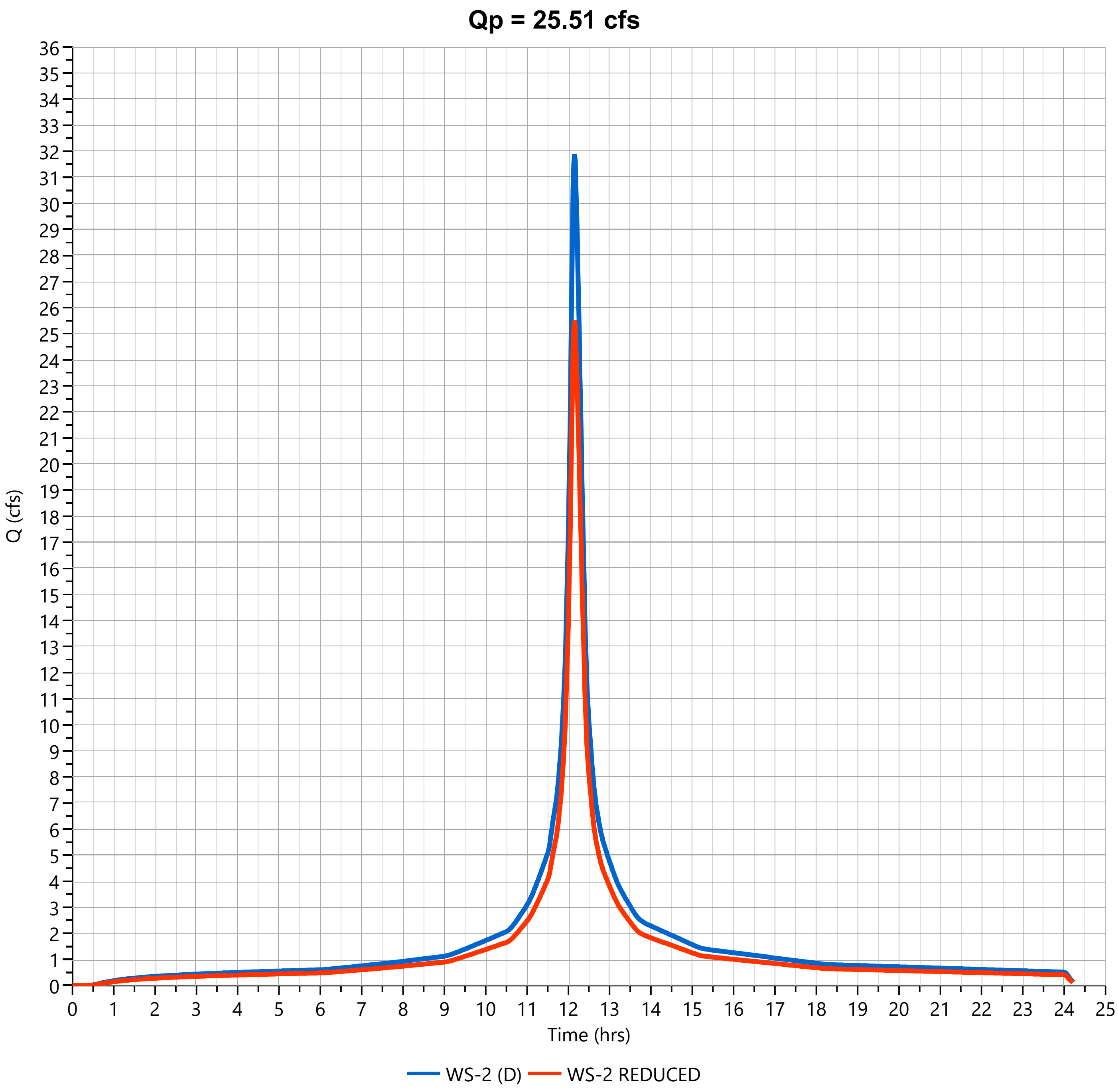
Hydrograph Type	= Junction	Peak Flow	= 31.88 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 150,209 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 4.28 ac



WS-2 REDUCED

Hyd. No. 12

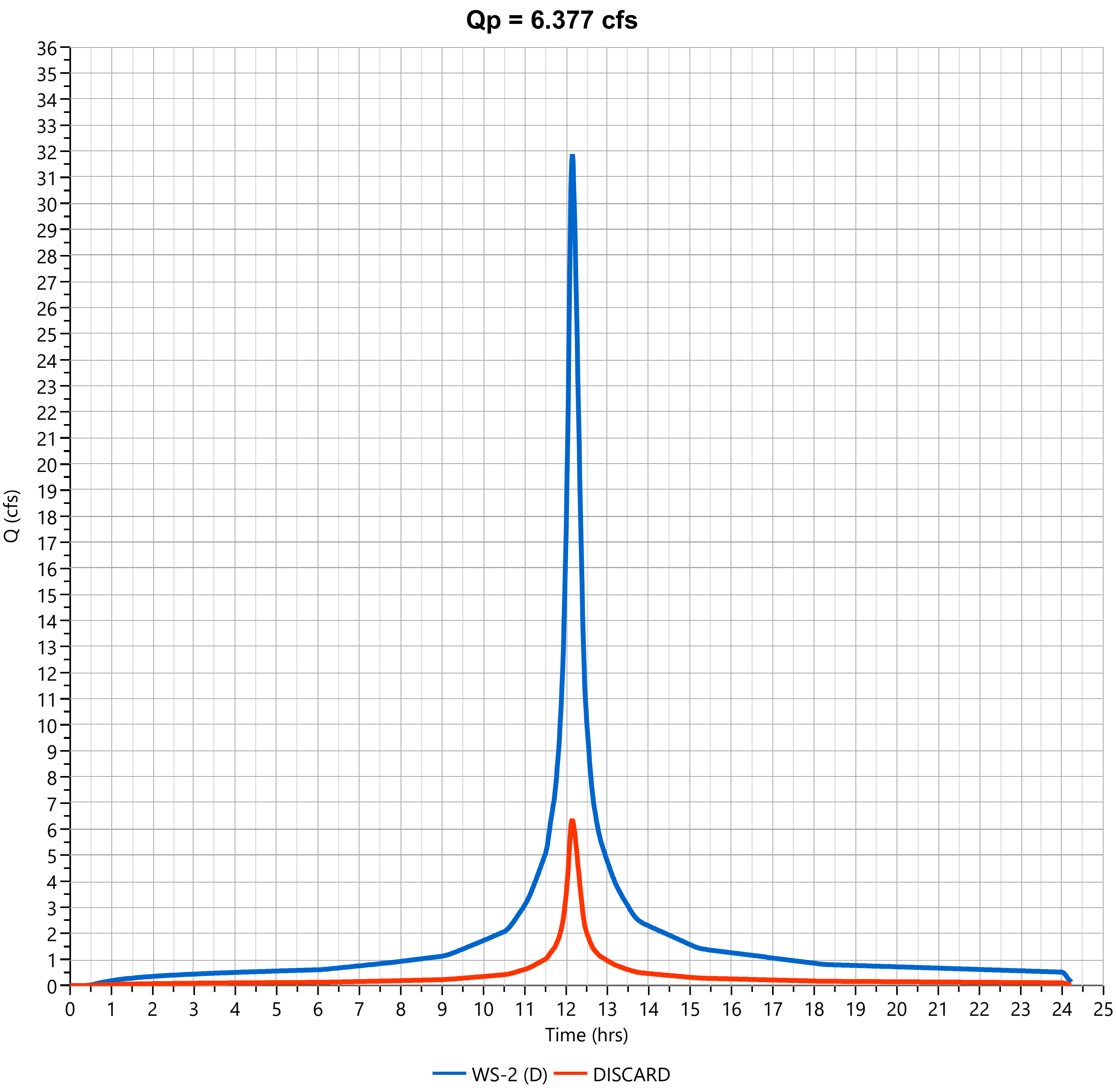
Hydrograph Type	= Diversion	Peak Flow	= 25.51 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 120,167 cuft
Inflow Hydrograph	= 11 - WS-2 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 13 - DISCARD	Flow Ratio	= 0.8



DISCARD

Hyd. No. 13

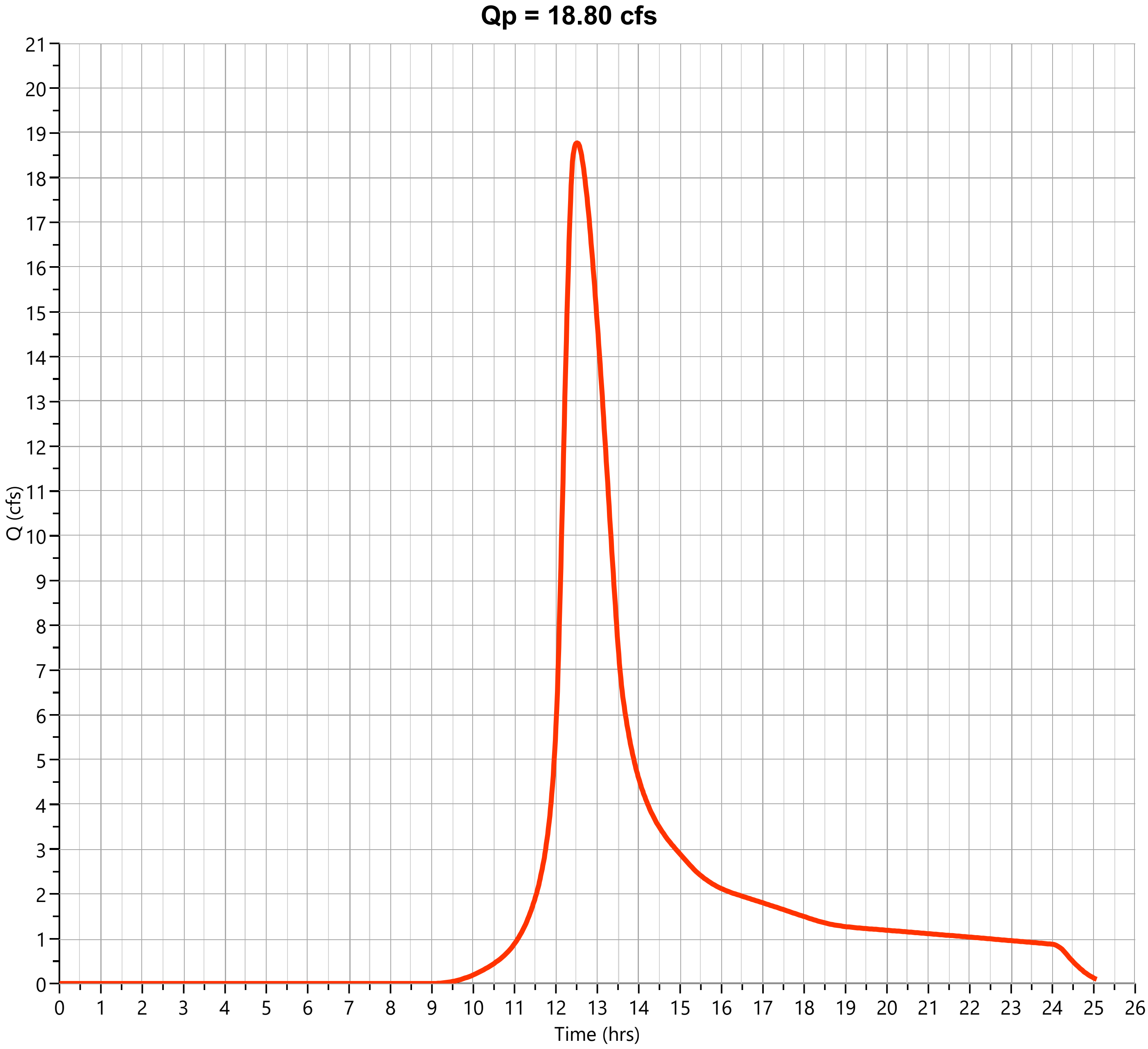
Hydrograph Type	= Diversion	Peak Flow	= 6.377 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Hydrograph Volume	= 30,042 cuft
Inflow Hydrograph	= 11 - WS-2 (D)	Diversion Method	= Flow Ratio
Companion Hyd	= 12 - WS-2 REDUCED	Flow Ratio	= 0.8



WS-2 (U) (PER)

Hyd. No. 14

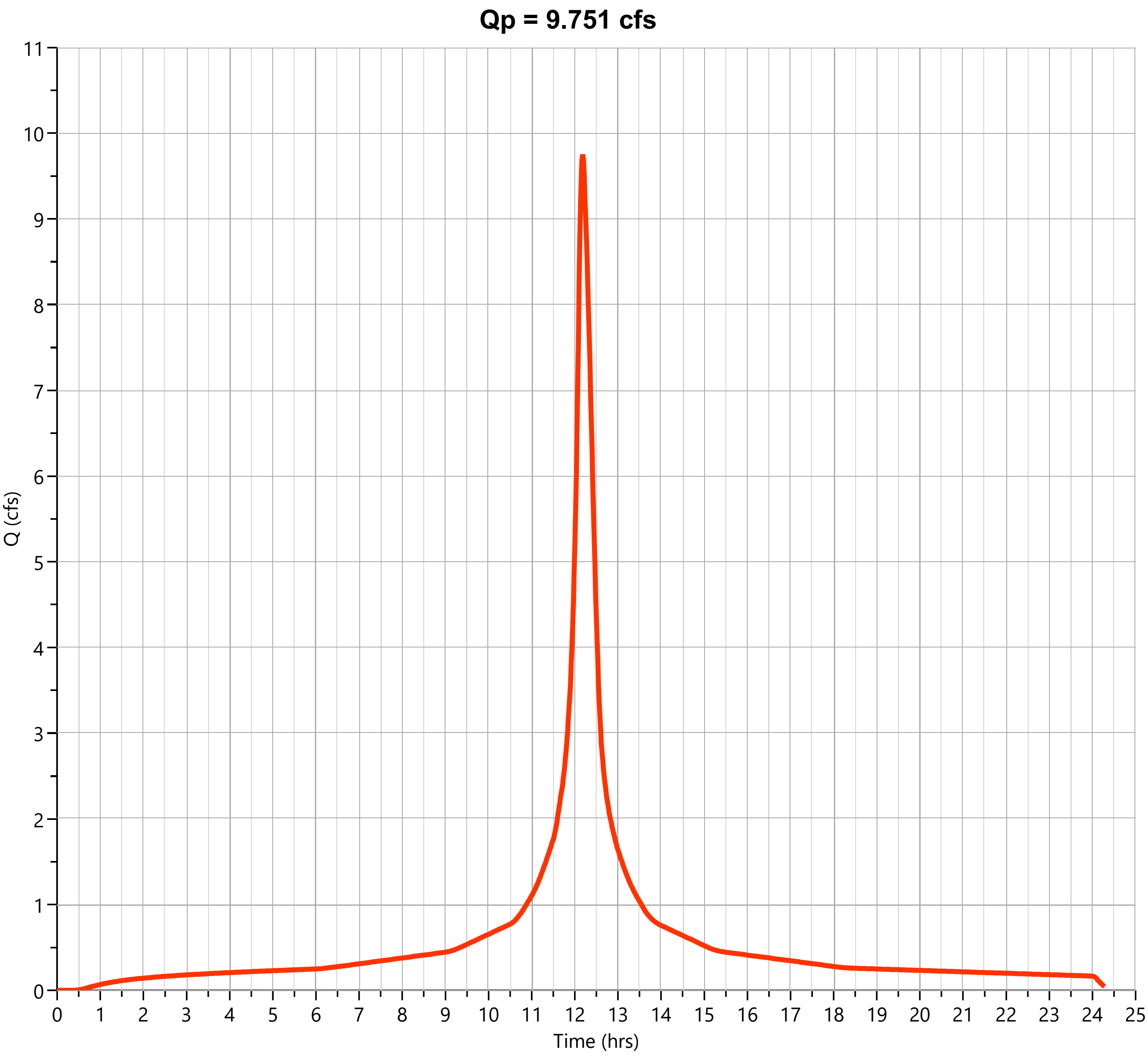
Hydrograph Type	= NRCS Runoff	Peak Flow	= 18.80 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.52 hrs
Time Interval	= 1 min	Runoff Volume	= 156,876 cuft
Drainage Area	= 8.81 ac	Curve Number	= 54.00
Tc Method	= User	Time of Conc. (Tc)	= 33.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (U) (IMP)

Hyd. No. 15

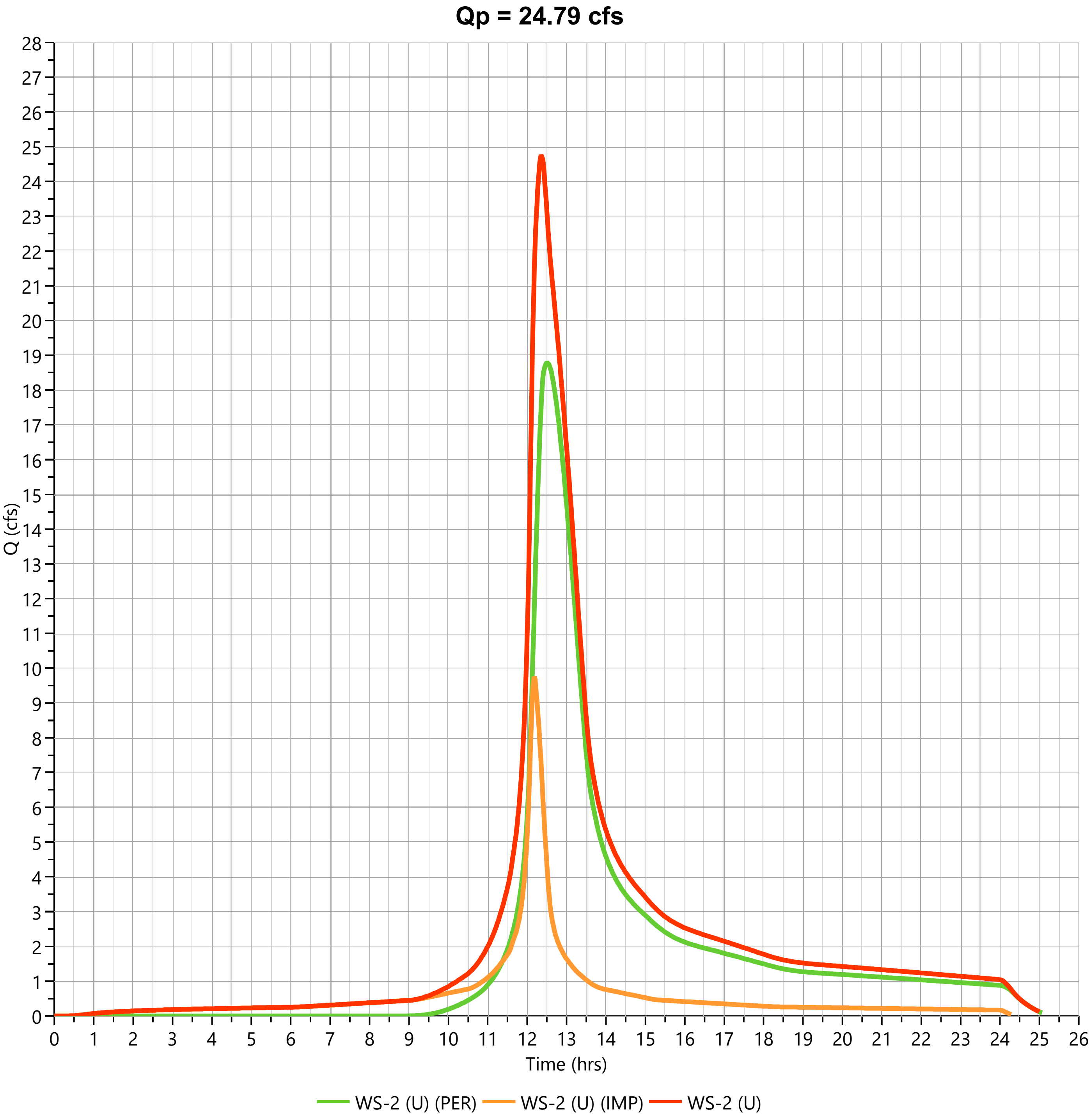
Hydrograph Type	= NRCS Runoff	Peak Flow	= 9.751 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 52,554 cuft
Drainage Area	= 1.33 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



WS-2 (U)

Hyd. No. 16

Hydrograph Type	= Junction	Peak Flow	= 24.79 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.37 hrs
Time Interval	= 1 min	Hydrograph Volume	= 209,430 cuft
Inflow Hydrographs	= 14, 15	Total Contrib. Area	= 10.14 ac

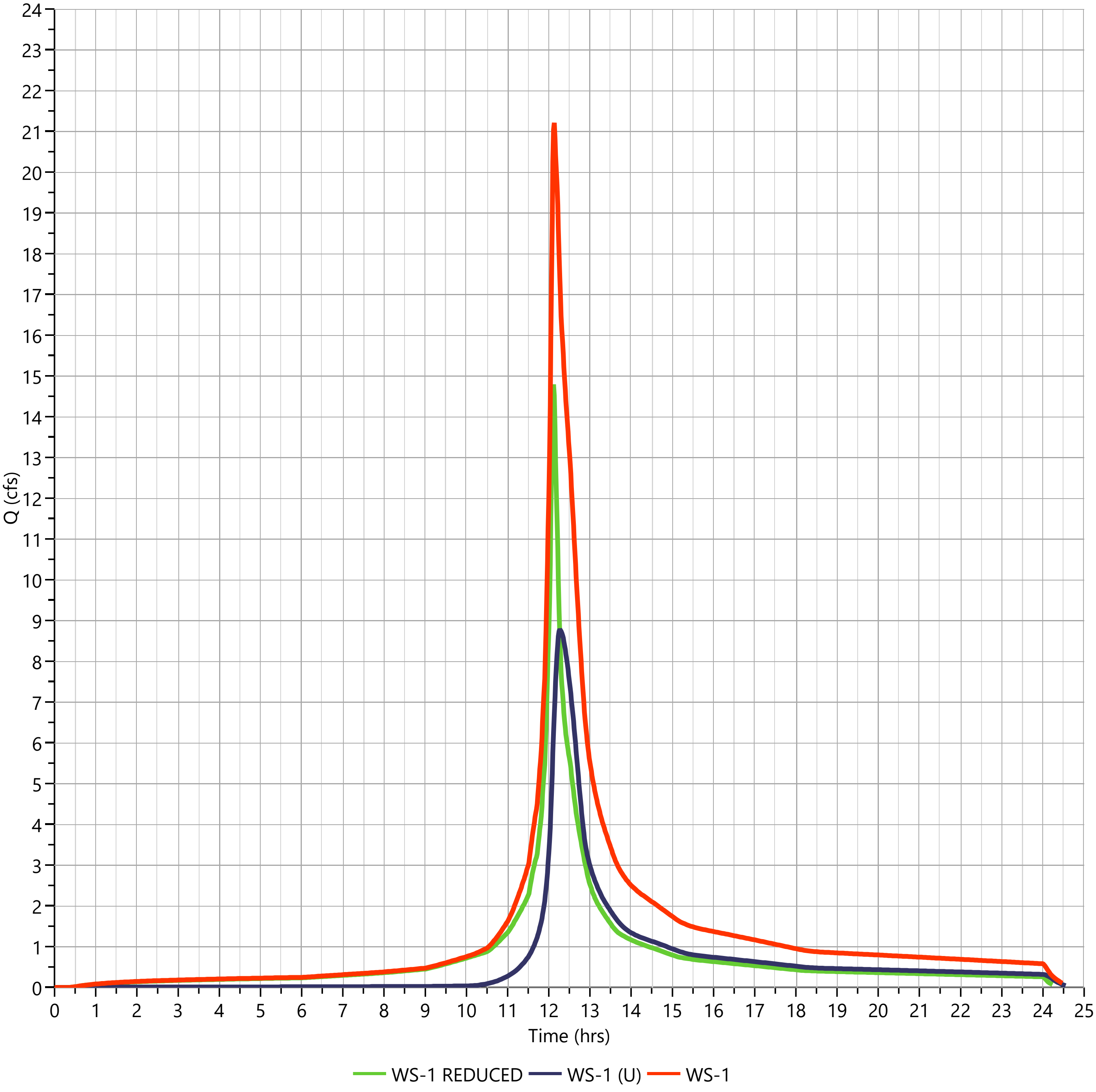


WS-1

Hyd. No. 17

Hydrograph Type	= Junction	Peak Flow	= 21.21 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 124,481 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac

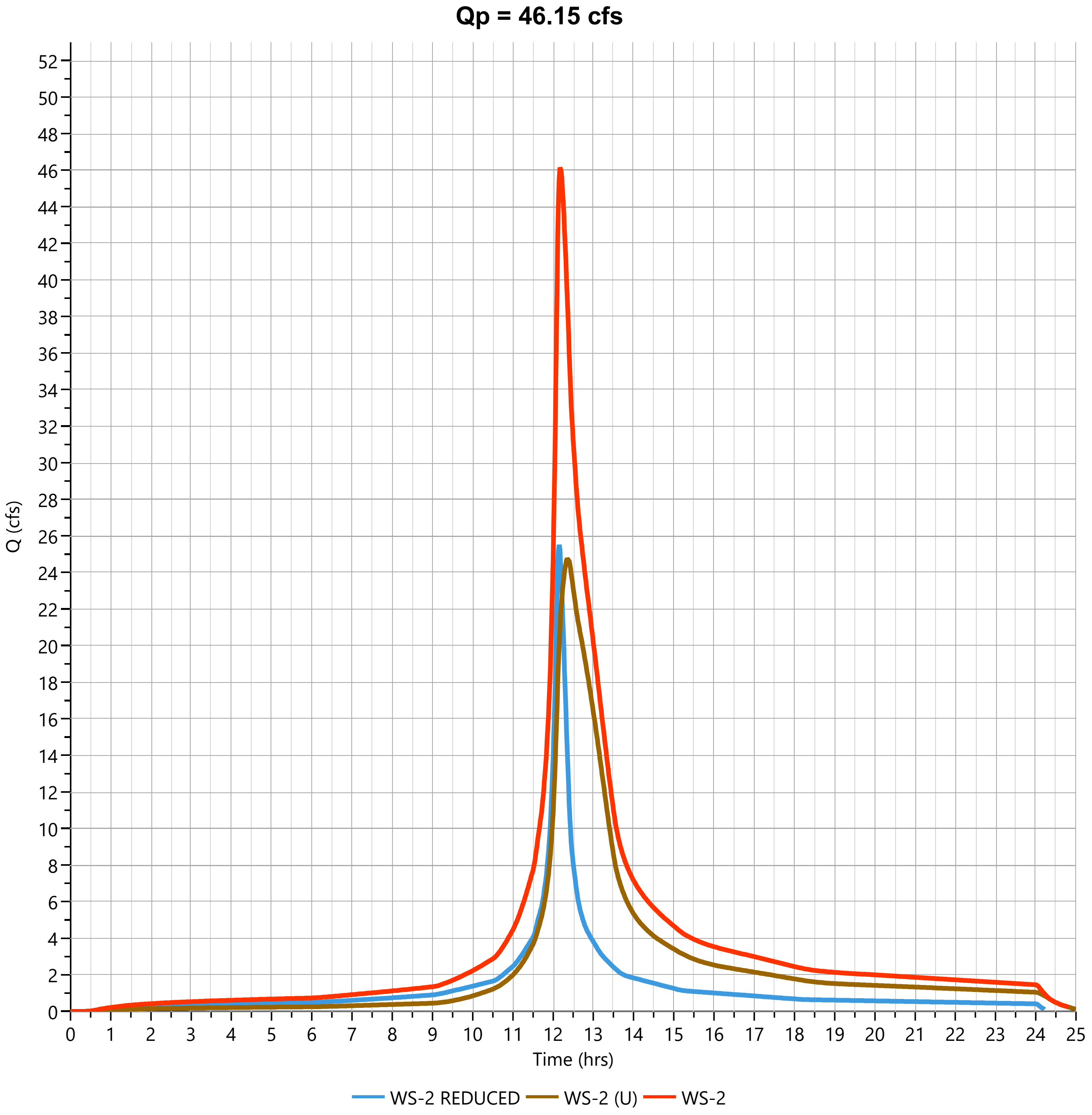
Qp = 21.21 cfs



WS-2

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 46.15 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 1 min	Hydrograph Volume	= 329,597 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



APPENDIX B

Proposed Stormwater Discharge Calculations

CN and TC Sheets

Proposed Curve Number (CN) Calculations

Drainage Area	Area (ac)	HSG A		HSG B			HSG D				
		Open Space (ac)	Wooded Area (ac)	Open Space (ac)	Gravel (ac)	Wooded Area (ac)	Open Space (ac)	Wooded Area (ac)	Weighted Pervious CN	Total Pervious Area (ac)	Impervious Area (ac)
		CN = 39	CN = 30	CN = 61	CN = 85	CN = 55	CN = 80	CN = 77			CN = 98
Watershed-1A (Detained)	1.94	0.00	0.00	0.75	0.00	0.04	0.01	0.00	61	0.81	1.13
Watershed-1B (Undetained)	4.03	0.03	1.21	1.25	0.00	1.37	0.05	0.00	49	3.92	0.11
Watershed-2A (Detained)	2.50	0.00	0.00	1.16	0.00	0.13	0.00	0.00	60	1.30	1.20
Watershed-2B (Detained)	1.83	0.00	0.00	0.54	0.00	0.00	0.00	0.00	61	0.54	1.29
Watershed-2C (Undetained)	10.51	0.06	1.41	3.09	0.49	3.97	0.00	0.00	55	9.02	1.49

Project:	**Data Center at Bell Works**	**By:**	**BMW**	**Date:**	**7/23/2026**
Location:	**Holmdel, Monmouth County, NJ**	**Checked By:**	**LDS**	**Date Checked:**	**7/23/2026**

Circle One: **Present** [✓ Developed] **Proposed Watershed 1A - Pervious (Current)**

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**		
1. Surface Description (NEH table 15-1)			**Short Grass Prairie**		
2. Manning's Roughness Coeff., n (NEH table 15-1)			**0.15**		
3. Flow Length, L (total L < 100 ft)		ft	**100**		
4. Two-year 24-hr rainfall, P_2		in	**3.35**		
5. Land Slope, s		ft/ft	**0.055**		
6. Compute T_t	$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	**0.107**		

Sheet Flow Sub-Total **0.107 hours**

Shallow Concentrated Flow

		Segment ID	**2**	**3**	
7. Surface Description			**Short-Grass Pasture**	**Pavement**	
8. Flow Length, L		ft	**15**	**183**	
9. Watercourse Slope, s		ft/ft	**0.114**	**0.014**	
10. Average Velocity, V (NEH table 15-3)		ft/s	**2.35**	**2.37**	
11. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	**0.002**	**0.021**	

Shallow Conc. Flow Sub-Total **0.023 hours**

Channel Flow

		Segment ID	**4**		
12. Flow Length, L		ft	**220**		
13. Cross Sectional flow area, a		ft^2	**0.79**		
14. Wetted Perimeter, P_w		ft	**3.14**		
15. Hydraulic Radius, r	$r = a / P_w$	ft	**0.25**		
16. Channel Slope, s		ft/ft	**0.006**		
17. Manning's Roughness Coeff., n			**0.012**		
18. Velocity, V	$V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s	**3.82**		
19. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	**0.016**		

Channel Flow Sub-Total **0.016 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.146 hours**
Total Tc (minutes) =	**9 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] **Proposed Watershed 1A - Pervious (Future)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

	Segment ID		**1**			
1.	Surface Description (NEH table 15-1)		**Short Grass Prairie**			
2.	Manning's Roughness Coeff., n (NEH table 15-1)		**0.15**			
3.	Flow Length, L (total L < 100 ft)	ft	**100**			
4.	Two-year 24-hr rainfall, P_2	in	**3.99**			
5.	Land Slope, s	ft/ft	**0.055**			
6.	Compute T_t $T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}s^{0.4}}$	hr	**0.098**	+		+

Sheet Flow Sub-Total **0.098 hours**

Shallow Concentrated Flow

	Segment ID		**2**		**3**		
7.	Surface Description		**Short-Grass Pasture**		**Pavement**		
8.	Flow Length, L	ft	**15**		**183**		
9.	Watercourse Slope, s	ft/ft	**0.114**		**0.014**		
10.	Average Velocity, V (NEH table 15-3)	ft/s	**2.35**		**2.37**		
11.	Compute T_t $T_t = \frac{L}{3600\,V}$	hr	**0.002**	+	**0.021**	+	

Shallow Conc. Flow Sub-Total **0.023 hours**

Channel Flow

	Segment ID		**4**				
12.	Flow Length, L	ft	**220**				
13.	Cross Sectional flow area, a	ft^2	**0.79**				
14.	Wetted Perimeter, P_w	ft	**3.14**				
15.	Hydraulic Radius, r $r = a / P_w$	ft	**0.25**				
16.	Channel Slope, s	ft/ft	**0.006**				
17.	Manning's Roughness Coeff., n		**0.012**				
18.	Velocity, V $V = (1.49\,r^{2/3}\,s^{1/2})\,/\,n$	ft/s	**3.82**				
19.	Compute T_t $T_t = \frac{L}{3600\,V}$	hr	**0.016**	+		+	

Channel Flow Sub-Total **0.016 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.137 hours**
Total Tc (minutes) =	**8 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: Present [✓ Developed] Proposed Watershed 1A - Impervious (Current)

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1		
1.	Surface Description (NEH table 15-1)		Smooth Surfaces		
2.	Manning's Roughness Coeff., n (NEH table 15-1)		0.011		
3.	Design Flow Length, L_{des} (Total L_{des} < 100 ft)	ft	100		
4.	Two-year 24-hr rainfall, P_2	in	3.35		
5.	Land Slope, s	ft/ft	0.015		
6.	McCuen-Spiess Limit, L_{mcs} (max. 100 ft) $L_{mcs} = (100\ s^{0.5})/n$	ft	100		
7.	Compute T_t $T_t = \frac{0.007\ (nL_{des})^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.022	+	+

Sheet Flow Sub-Total **0.022 hours**

Shallow Concentrated Flow

		Segment ID	2		
8.	Surface Description		Pavement		
9.	Flow Length, L	ft	111		
10.	Watercourse Slope, s	ft/ft	0.014		
11.	Average Velocity, V (NEH table 15-3)	ft/s	2.37		
12.	Compute T_t $T_t = \frac{L}{3600\ V}$	hr	0.013	+	+

Shallow Conc. Flow Sub-Total **0.013 hours**

Channel Flow

		Segment ID	3		
13.	Flow Length, L	ft	220		
14.	Cross Sectional flow area, a	ft^2	0.79		
15.	Wetted Perimeter, P_w	ft	3.14		
16.	Hydraulic Radius, r $r = a / P_w$	ft	0.25		
17.	Channel Slope, s	ft/ft	0.006		
18.	Manning's Roughness Coeff., n		0.012		
19.	Velocity, V $V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s	3.82		
20.	Compute T_t $T_t = \frac{L}{3600\ V}$	hr	0.016	+	+

Channel Flow Sub-Total **0.016 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.051 hours**
Total Tc (minutes) =	**3 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] Proposed Watershed 1A - Impervious (Future)
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1		
1.	Surface Description (NEH table 15-1)		Smooth Surfaces		
2.	Manning's Roughness Coeff., n (NEH table 15-1)		0.011		
3.	Design Flow Length, L_{des} (Total L_{des} < 100 ft)	ft	100		
4.	Two-year 24-hr rainfall, P_2	in	3.99		
5.	Land Slope, s	ft/ft	0.015		
6.	McCuen-Spiess Limit, L_{mcs} (max. 100 ft) $L_{mcs} = (100\ s^{0.5})/n$	ft	100		
7.	Compute T_t $T_t = \frac{0.007\ (nL_{des})^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.020 +	+	

Sheet Flow Sub-Total **0.020 hours**

Shallow Concentrated Flow

		Segment ID	2		
8.	Surface Description		Pavement		
9.	Flow Length, L	ft	111		
10.	Watercourse Slope, s	ft/ft	0.014		
11.	Average Velocity, V (NEH table 15-3)	ft/s	2.37		
12.	Compute T_t $T_t = \frac{L}{3600\ V}$	hr	0.013 +	+	

Shallow Conc. Flow Sub-Total **0.013 hours**

Channel Flow

		Segment ID	3		
13.	Flow Length, L	ft	220		
14.	Cross Sectional flow area, a	ft^2	0.79		
15.	Wetted Perimeter, P_w	ft	3.14		
16.	Hydraulic Radius, r $r = a / P_w$	ft	0.25		
17.	Channel Slope, s	ft/ft	0.006		
18.	Manning's Roughness Coeff., n		0.012		
19.	Velocity, V $V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s	3.82		
20.	Compute T_t $T_t = \frac{L}{3600\ V}$	hr	0.016 +	+	

Channel Flow Sub-Total **0.016 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.049 hours**
Total Tc (minutes) =	**3 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] **Proposed Watershed 1B - Pervious (Current)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**		
1. Surface Description (NEH table 15-1)			**Woods Light Underbrush**		
2. Manning's Roughness Coeff., n (NEH table 15-1)			**0.40**		
3. Flow Length, L (total L < 100 ft)		ft	**100**		
4. Two-year 24-hr rainfall, P_2		in	**3.35**		
5. Land Slope, s		ft/ft	**0.174**		
6. Compute T_t	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	**0.147**	+	+

Sheet Flow Sub-Total **0.147 hours**

Shallow Concentrated Flow

		Segment ID	**2**	**3**	**4**
7. Surface Description			**Woodlands**	**Woodlands**	**Short-Grass Pasture**
8. Flow Length, L		ft	**21**	**21**	**25**
9. Watercourse Slope, s		ft/ft	**0.002**	**0.014**	**0.019**
10. Average Velocity, V (NEH table 15-3)		ft/s	**0.22**	**0.59**	**0.96**
11. Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	**0.027**	+ **0.010**	+ **0.007**

Shallow Conc. Flow Sub-Total **0.044 hours**

Shallow Concentrated Flow

		Segment ID	**4**		
12. Surface Description			**Woodlands**		
13. Flow Length, L		ft	**83**		
14. Watercourse Slope, s		ft/ft	**0.006**		
15. Average Velocity, V (NEH table 15-3)		ft/s	**0.22**		
16. Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	**0.105**	+	+

Shallow Conc. Flow Sub-Total **0.105 hours**

Channel Flow

		Segment ID	**5**	**6**	
12. Flow Length, L		ft	**235**	**143**	
13. Cross Sectional flow area, a		ft^2	**1.23**	**1.77**	
14. Wetted Perimeter, P_w		ft	**3.93**	**4.71**	
15. Hydraulic Radius, r	$r = a / P_w$	ft	**0.31**	**0.38**	
16. Channel Slope, s		ft/ft			
17. Manning's Roughness Coeff., n			**0.013**	**0.023**	
18. Velocity, V	$V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s			
19. Compute T_t	$T_t = \frac{L}{3600\ V}$	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.296 hours**
Total Tc (minutes) =	**18 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] **Proposed Watershed 1B - Pervious (Future)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**		
1. Surface Description (NEH table 15-1)			**Woods Light Underbrush**		
2. Manning's Roughness Coeff., n (NEH table 15-1)			**0.40**		
3. Flow Length, L (total L < 100 ft)		ft	**100**		
4. Two-year 24-hr rainfall, P_2		in	**3.99**		
5. Land Slope, s		ft/ft	**0.174**		
6. Compute T_t	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	**0.135** +	+	

Sheet Flow Sub-Total **0.135 hours**

Shallow Concentrated Flow

		Segment ID	**2**	**3**	**4**
7. Surface Description			**Woodlands**	**Woodlands**	**Short-Grass Pasture**
8. Flow Length, L		ft	**21**	**21**	**25**
9. Watercourse Slope, s		ft/ft	**0.002**	**0.014**	**0.019**
10. Average Velocity, V (NEH table 15-3)		ft/s	**0.22**	**0.59**	**0.96**
11. Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	**0.027** +	**0.010** +	**0.007**

Shallow Conc. Flow Sub-Total **0.044 hours**

Shallow Concentrated Flow

		Segment ID	**4**		
12. Surface Description			**Woodlands**		
13. Flow Length, L		ft	**83**		
14. Watercourse Slope, s		ft/ft	**0.006**		
15. Average Velocity, V (NEH table 15-3)		ft/s	**0.22**		
16. Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	**0.105** +	+	

Shallow Conc. Flow Sub-Total **0.105 hours**

Channel Flow

		Segment ID	**5**	**6**	
12. Flow Length, L		ft	**235**	**143**	
13. Cross Sectional flow area, a		ft^2	**1.23**	**1.77**	
14. Wetted Perimeter, P_w		ft	**3.93**	**4.71**	
15. Hydraulic Radius, r	$r = a / P_w$	ft	**0.31**	**0.38**	
16. Channel Slope, s		ft/ft			
17. Manning's Roughness Coeff., n			**0.013**	**0.023**	
18. Velocity, V	$V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s			
19. Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	+	+	

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t	Total Tc (hours) =	**0.283 hours**
(Add Sub-Total T_t from prior steps)	Total Tc (minutes) =	**17 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] **Proposed Watershed 1B - Impervious (Current)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**	**2**	
1.	Surface Description (NEH table 15-1)		**Smooth Surfaces**	**Short Grass Prairie**	
2.	Manning's Roughness Coeff., n (NEH table 15-1)		**0.011**	**0.15**	
3.	Flow Length, L (total L < 100 ft)	ft	**74**	**26**	
4.	Two-year 24-hr rainfall, P_2	in	**3.99**	**3.99**	
5.	Land Slope, s	ft/ft	**0.004**	**0.158**	
6.	Compute T_t $\quad T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}s^{0.4}}$	hr	**0.026** +	**0.022** +	

Sheet Flow Sub-Total **0.048 hours**

Shallow Concentrated Flow

		Segment ID	**3**	**4**	
7.	Surface Description		**Short-Grass Pasture**	**Woodlands**	
8.	Flow Length, L	ft	**23**	**99**	
9.	Watercourse Slope, s	ft/ft	**0.008**	**0.074**	
10.	Average Velocity, V (NEH table 15-3)	ft/s	**0.62**	**1.37**	
11.	Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	**0.010** +	**0.020** +	

Shallow Conc. Flow Sub-Total **0.030 hours**

Channel Flow

		Segment ID			
12.	Flow Length, L	ft			
13.	Cross Sectional flow area, a	ft^2			
14.	Wetted Perimeter, P_w	ft			
15.	Hydraulic Radius, r $\quad r = a / P_w$	ft			
16.	Channel Slope, s	ft/ft			
17.	Manning's Roughness Coeff., n				
18.	Velocity, V $\quad V = (1.49\,r^{2/3}\,s^{1/2}) / n$	ft/s			
19.	Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	+	+	

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.078 hours**
Total Tc (minutes) =	**5 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] **Proposed Watershed 1B - Impervious (Future)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1	2	
1.	Surface Description (NEH table 15-1)		Smooth Surfaces	Short Grass Prairie	
2.	Manning's Roughness Coeff., n (NEH table 15-1)		0.011	0.15	
3.	Flow Length, L (total L < 100 ft)	ft	74	26	
4.	Two-year 24-hr rainfall, P_2	in	3.99	3.99	
5.	Land Slope, s	ft/ft	0.004	0.158	
6.	Compute T_t $T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.026 +	0.022 +	

Sheet Flow Sub-Total **0.048 hours**

Shallow Concentrated Flow

		Segment ID	3	4	
7.	Surface Description		Short-Grass Pasture	Woodlands	
8.	Flow Length, L	ft	23	99	
9.	Watercourse Slope, s	ft/ft	0.008	0.074	
10.	Average Velocity, V (NEH table 15-3)	ft/s	0.62	1.37	
11.	Compute T_t $T_t = \frac{L}{3600\,V}$	hr	0.010 +	0.020 +	

Shallow Conc. Flow Sub-Total **0.030 hours**

Channel Flow

		Segment ID			
12.	Flow Length, L	ft			
13.	Cross Sectional flow area, a	ft^2			
14.	Wetted Perimeter, P_w	ft			
15.	Hydraulic Radius, r $r = a / P_w$	ft			
16.	Channel Slope, s	ft/ft			
17.	Manning's Roughness Coeff., n				
18.	Velocity, V $V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s			
19.	Compute T_t $T_t = \frac{L}{3600\,V}$	hr	+	+	

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.078 hours**
Total Tc (minutes) =	**5 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] **Proposed Watershed 2A - Pervious (Current)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)							
		Segment ID	1		2		
1. Surface Description (NEH table 15-1)			Woods Light Underbrush		Short Grass Prairie		
2. Manning's Roughness Coeff., n (NEH table 15-1)			0.40		0.15		
3. Flow Length, L (total L < 100 ft)		ft	37		63		
4. Two-year 24-hr rainfall, P_2		in	3.35		3.35		
5. Land Slope, s		ft/ft	0.058		0.160		
6. Compute T_t	$T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.103	+	0.048	+	
						Sheet Flow Sub-Total	0.151 hours

Shallow Concentrated Flow							
		Segment ID	3		4		
7. Surface Description			Short-Grass Pasture		Pavement		
8. Flow Length, L		ft	10		30		
9. Watercourse Slope, s		ft/ft	0.091		0.022		
10. Average Velocity, V (NEH table 15-3)		ft/s	2.10		2.99		
11. Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	0.001	+	0.003	+	
						Shallow Conc. Flow Sub-Total	0.004 hours

Channel Flow							
		Segment ID	5		6		
12. Flow Length, L		ft	95		57		
13. Cross Sectional flow area, a		ft^2	0.79		0.79		
14. Wetted Perimeter, P_w		ft	3.14		3.14		
15. Hydraulic Radius, r	$r = a / P_w$	ft	0.25		0.25		
16. Channel Slope, s		ft/ft	0.005		0.006		
17. Manning's Roughness Coeff., n			0.012		0.012		
18. Velocity, V	$V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s	3.48		3.82		
19. Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	0.008	+	0.004	+	
						Channel Flow Sub-Total	0.012 hours

Watershed or subarea T_c or T_t		
(Add Sub-Total T_t from prior steps)	Total Tc (hours) =	0.167 hours
	Total Tc (minutes) =	10 minutes

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: Present [✓ Developed] **Proposed Watershed 2A - Pervious (Future)**

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**		**2**		
1. Surface Description (NEH table 15-1)			**Woods Light Underbrush**		**Short Grass Prairie**		
2. Manning's Roughness Coeff., n (NEH table 15-1)			**0.40**		**0.15**		
3. Flow Length, L (total L < 100 ft)		ft	**37**		**63**		
4. Two-year 24-hr rainfall, P_2		in	**3.99**		**3.99**		
5. Land Slope, s		ft/ft	**0.058**		**0.160**		
6. Compute T_t	$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}s^{0.4}}$	hr	**0.095**	+	**0.044**	+	

Sheet Flow Sub-Total **0.139 hours**

Shallow Concentrated Flow

		Segment ID	**3**		**4**		
7. Surface Description			**Short-Grass Pasture**		**Pavement**		
8. Flow Length, L		ft	**10**		**30**		
9. Watercourse Slope, s		ft/ft	**0.091**		**0.022**		
10. Average Velocity, V (NEH table 15-3)		ft/s	**2.10**		**2.99**		
11. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	**0.001**	+	**0.003**	+	

Shallow Conc. Flow Sub-Total **0.004 hours**

Channel Flow

		Segment ID	**5**		**6**		
12. Flow Length, L		ft	**95**		**57**		
13. Cross Sectional flow area, a		ft^2	**0.79**		**0.79**		
14. Wetted Perimeter, P_w		ft	**3.14**		**3.14**		
15. Hydraulic Radius, r	$r = a / P_w$	ft	**0.25**		**0.25**		
16. Channel Slope, s		ft/ft	**0.005**		**0.006**		
17. Manning's Roughness Coeff., n			**0.012**		**0.012**		
18. Velocity, V	$V = (1.49\,r^{2/3}s^{1/2}) / n$	ft/s	**3.48**		**3.82**		
19. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	**0.008**	+	**0.004**	+	

Channel Flow Sub-Total **0.012 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) = **0.155 hours**
Total Tc (minutes) = **9 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: Present [✓ Developed] Proposed Watershed 2A - Impervious (Current)

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

			Segment ID	1		
1.	Surface Description (NEH table 15-1)			Smooth Surfaces		
2.	Manning's Roughness Coeff., n (NEH table 15-1)			0.011		
3.	Design Flow Length, L_{des} (Total L_{des} < 100 ft)		ft	66		
4.	Two-year 24-hr rainfall, P_2		in	3.35		
5.	Land Slope, s		ft/ft	0.016		
6.	McCuen-Spiess Limit, L_{mcs} (max. 100 ft)	$L_{mcs} = (100\, s^{0.5})/n$	ft	100		
7.	Compute T_t	$T_t = \frac{0.007\,(nL_{des})^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.015	+	+

Sheet Flow Sub-Total **0.015 hours**

Shallow Concentrated Flow

			Segment ID			
8.	Surface Description					
9.	Flow Length, L		ft			
10.	Watercourse Slope, s		ft/ft			
11.	Average Velocity, V (NEH table 15-3)		ft/s			
12.	Compute T_t	$T_t = \frac{L}{3600\,V}$	hr		+	+

Shallow Conc. Flow Sub-Total **0.000 hours**

Channel Flow

			Segment ID	2	3	
13.	Flow Length, L		ft	322	57	
14.	Cross Sectional flow area, a		ft^2	0.79	0.79	
15.	Wetted Perimeter, P_w		ft	3.14	3.14	
16.	Hydraulic Radius, r	$r = a / P_w$	ft	0.25	0.25	
17.	Channel Slope, s		ft/ft	0.005	0.006	
18.	Manning's Roughness Coeff., n			0.012	0.012	
19.	Velocity, V	$V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s	3.48	3.82	
20.	Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	0.026	+ 0.004	+

Channel Flow Sub-Total **0.030 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.045 hours**
Total Tc (minutes) =	**3 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: Present [✓ Developed] Proposed Watershed 2A - Impervious (Future)

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1		
1.	Surface Description (NEH table 15-1)		Smooth Surfaces		
2.	Manning's Roughness Coeff., n (NEH table 15-1)		0.011		
3.	Design Flow Length, L_{des} (Total L_{des} < 100 ft)	ft	66		
4.	Two-year 24-hr rainfall, P_2	in	3.99		
5.	Land Slope, s	ft/ft	0.016		
6.	McCuen-Spiess Limit, L_{mcs} (max. 100 ft) $L_{mcs} = (100\ s^{0.5})/n$	ft	100		
7.	Compute T_t $T_t = \frac{0.007\ (nL_{des})^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.014 +	+	

Sheet Flow Sub-Total **0.014 hours**

Shallow Concentrated Flow

		Segment ID			
8.	Surface Description				
9.	Flow Length, L	ft			
10.	Watercourse Slope, s	ft/ft			
11.	Average Velocity, V (NEH table 15-3)	ft/s			
12.	Compute T_t $T_t = \frac{L}{3600\ V}$	hr	+	+	

Shallow Conc. Flow Sub-Total **0.000 hours**

Channel Flow

		Segment ID	2	3	
13.	Flow Length, L	ft	322	57	
14.	Cross Sectional flow area, a	ft^2	0.79	0.79	
15.	Wetted Perimeter, P_w	ft	3.14	3.14	
16.	Hydraulic Radius, r $r = a / P_w$	ft	0.25	0.25	
17.	Channel Slope, s	ft/ft	0.005	0.006	
18.	Manning's Roughness Coeff., n		0.012	0.012	
19.	Velocity, V $V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s	3.48	3.82	
20.	Compute T_t $T_t = \frac{L}{3600\ V}$	hr	0.026 +	0.004 +	

Channel Flow Sub-Total **0.030 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.044 hours**
Total Tc (minutes) =	**3 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] Proposed Watershed 2B - Pervious (Current)
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)			Segment ID	1		
1.	Surface Description (NEH table 15-1)			Short Grass Prairie		
2.	Manning's Roughness Coeff., n (NEH table 15-1)			0.15		
3.	Design Flow Length, L_{des} (Total L_{des} < 100 ft)		ft	37		
4.	Two-year 24-hr rainfall, P_2		in	3.35		
5.	Land Slope, s		ft/ft	0.157		
6.	McCuen-Spiess Limit, L_{mcs} (max. 100 ft)	$L_{mcs} = (100\ s^{0.5})/n$	ft	100		
7.	Compute T_t	$T_t = \frac{0.007\ (nL_{des})^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.032	+	+
					Sheet Flow Sub-Total	0.032 hours

Shallow Concentrated Flow			Segment ID			
8.	Surface Description					
9.	Flow Length, L		ft			
10.	Watercourse Slope, s		ft/ft			
11.	Average Velocity, V (NEH table 15-3)		ft/s			
12.	Compute T_t	$T_t = \frac{L}{3600\ V}$	hr		+	+
					Shallow Conc. Flow Sub-Total	0.000 hours

Channel Flow			Segment ID			
13.	Flow Length, L		ft			
14.	Cross Sectional flow area, a		ft^2			
15.	Wetted Perimeter, P_w		ft			
16.	Hydraulic Radius, r	$r = a / P_w$	ft			
17.	Channel Slope, s		ft/ft			
18.	Manning's Roughness Coeff., n					
19.	Velocity, V	$V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s			
20.	Compute T_t	$T_t = \frac{L}{3600\ V}$	hr			
					Channel Flow Sub-Total	0.000 hours

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	0.032 hours
Software Limitations Require Minimum Tc =	2 minutes

Project: Data Center at Bell Works
By: BMW
Date: 7/23/2026
Location: Holmdel, Monmouth County, NJ
Checked By: LDS
Date Checked: 7/23/2026
Circle One: Present [✓ Developed]
Proposed Watershed 2B - Pervious (Future)
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1		
1. Surface Description (NEH table 15-1)			Short Grass Prairie		
2. Manning's Roughness Coeff., n (NEH table 15-1)			0.15		
3. Design Flow Length, L_{des} (Total L_{des} < 100 ft)		ft	37		
4. Two-year 24-hr rainfall, P_2		in	3.99		
5. Land Slope, s		ft/ft	0.157		
6. McCuen-Spiess Limit, L_{mcs} (max. 100 ft)	$L_{mcs} = (100\,s^{0.5})/n$	ft	100		
7. Compute T_t	$T_t = \frac{0.007\,(nL_{des})^{0.8}}{P_2^{0.5}s^{0.4}}$	hr	0.029 +	+	

Sheet Flow Sub-Total **0.029 hours**

Shallow Concentrated Flow

		Segment ID			
8. Surface Description					
9. Flow Length, L		ft			
10. Watercourse Slope, s		ft/ft			
11. Average Velocity, V (NEH table 15-3)		ft/s			
12. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	+	+	

Shallow Conc. Flow Sub-Total **0.000 hours**

Channel Flow

		Segment ID			
13. Flow Length, L		ft			
14. Cross Sectional flow area, a		ft^2			
15. Wetted Perimeter, P_w		ft			
16. Hydraulic Radius, r	$r = a / P_w$	ft			
17. Channel Slope, s		ft/ft			
18. Manning's Roughness Coeff., n					
19. Velocity, V	$V = (1.49\,r^{2/3}\,s^{1/2}) / n$	ft/s			
20. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr			

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.029 hours**
Software Limitations Require Minimum Tc =	**2 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] Proposed Watershed 2B - Impervious (Current)
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

			Segment ID	1		
1.	Surface Description (NEH table 15-1)			Smooth Surfaces		
2.	Manning's Roughness Coeff., n (NEH table 15-1)			0.011		
3.	Design Flow Length, L_{des} (Total L_{des} < 100 ft)		ft	100		
4.	Two-year 24-hr rainfall, P_2		in	3.35		
5.	Land Slope, s		ft/ft	0.014		
6.	McCuen-Spiess Limit, L_{mcs} (max. 100 ft)	$L_{mcs} = (100\, s^{0.5})/n$	ft	100		
7.	Compute T_t	$T_t = \frac{0.007\, (nL_{des})^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.023 +	+	

Sheet Flow Sub-Total **0.023 hours**

Shallow Concentrated Flow

			Segment ID	2		
8.	Surface Description			Pavement		
9.	Flow Length, L		ft	100		
10.	Watercourse Slope, s		ft/ft	0.013		
11.	Average Velocity, V (NEH table 15-3)		ft/s	2.27		
12.	Compute T_t	$T_t = \frac{L}{3600\, V}$	hr	0.012 +	+	

Shallow Conc. Flow Sub-Total **0.012 hours**

Channel Flow

			Segment ID	3		
13.	Flow Length, L		ft	344		
14.	Cross Sectional flow area, a		ft^2	1.77		
15.	Wetted Perimeter, P_w		ft	4.71		
16.	Hydraulic Radius, r	$r = a / P_w$	ft	0.38		
17.	Channel Slope, s		ft/ft	0.005		
18.	Manning's Roughness Coeff., n			0.012		
19.	Velocity, V	$V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s	4.57		
20.	Compute T_t	$T_t = \frac{L}{3600\, V}$	hr	0.021		

Channel Flow Sub-Total **0.021 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.056 hours**
Total Tc (minutes) =	**3 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: Present [✓ Developed] Proposed Watershed 2B - Impervious (Current)

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

			Segment ID	1		
1.	Surface Description (NEH table 15-1)			Smooth Surfaces		
2.	Manning's Roughness Coeff., n (NEH table 15-1)			0.011		
3.	Design Flow Length, L_{des} (Total L_{des} < 100 ft)		ft	100		
4.	Two-year 24-hr rainfall, P_2		in	3.99		
5.	Land Slope, s		ft/ft	0.014		
6.	McCuen-Spiess Limit, L_{mcs} (max. 100 ft)	$L_{mcs} = (100\ s^{0.5})/n$	ft	100		
7.	Compute T_t	$T_t = \frac{0.007\ (nL_{des})^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.021 +	+	

Sheet Flow Sub-Total **0.021 hours**

Shallow Concentrated Flow

			Segment ID	2		
8.	Surface Description			Pavement		
9.	Flow Length, L		ft	100		
10.	Watercourse Slope, s		ft/ft	0.013		
11.	Average Velocity, V (NEH table 15-3)		ft/s	2.27		
12.	Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	0.012 +	+	

Shallow Conc. Flow Sub-Total **0.012 hours**

Channel Flow

			Segment ID	3		
13.	Flow Length, L		ft	344		
14.	Cross Sectional flow area, a		ft^2	1.77		
15.	Wetted Perimeter, P_w		ft	4.71		
16.	Hydraulic Radius, r	$r = a / P_w$	ft	0.38		
17.	Channel Slope, s		ft/ft	0.005		
18.	Manning's Roughness Coeff., n			0.012		
19.	Velocity, V	$V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s	4.57		
20.	Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	0.021		

Channel Flow Sub-Total **0.021 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.054 hours**
Total Tc (minutes) =	**3 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: Present [✓ Developed] **Proposed Watershed 2C - Impervious (Future)**

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**				
1. Surface Description (NEH table 15-1)			**Smooth Surfaces**				
2. Manning's Roughness Coeff., n (NEH table 15-1)			**0.011**				
3. Flow Length, L (total L < 100 ft)		ft	**100**				
4. Two-year 24-hr rainfall, P_2		in	**3.35**				
5. Land Slope, s		ft/ft	**0.006**				
6. Compute T_t	$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	**0.031**	+		+	

Sheet Flow Sub-Total **0.031 hours**

Shallow Concentrated Flow

		Segment ID	**2**		**3**		**4**
7. Surface Description			**Pavement**		**Short-Grass Pasture**		**Woodlands**
8. Flow Length, L		ft	**98**		**156**		**319**
9. Watercourse Slope, s		ft/ft	**0.004**		**0.034**		**0.035**
10. Average Velocity, V (NEH table 15-3)		ft/s	**1.30**		**1.29**		**0.94**
11. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	**0.021**	+	**0.034**	+	**0.094**

Shallow Conc. Flow Sub-Total **0.149 hours**

Channel Flow

		Segment ID					
12. Flow Length, L		ft					
13. Cross Sectional flow area, a		ft^2					
14. Wetted Perimeter, P_w		ft					
15. Hydraulic Radius, r	$r = a / P_w$	ft					
16. Channel Slope, s		ft/ft					
17. Manning's Roughness Coeff., n							
18. Velocity, V	$V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s					
19. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr		+		+	

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.180 hours**
Total Tc (minutes) =	**11 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: Present [✓ Developed] **Proposed Watershed 2C - Impervious (Future)**

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	**1**		
1. Surface Description (NEH table 15-1)			**Smooth Surfaces**		
2. Manning's Roughness Coeff., n (NEH table 15-1)			**0.011**		
3. Flow Length, L (total L < 100 ft)		ft	**100**		
4. Two-year 24-hr rainfall, P_2		in	**3.99**		
5. Land Slope, s		ft/ft	**0.006**		
6. Compute T_t	$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	**0.029**	+	+

Sheet Flow Sub-Total **0.029 hours**

Shallow Concentrated Flow

		Segment ID	**2**	**3**	**4**
7. Surface Description			**Pavement**	**Short-Grass Pasture**	**Woodlands**
8. Flow Length, L		ft	**98**	**156**	**319**
9. Watercourse Slope, s		ft/ft	**0.004**	**0.034**	**0.035**
10. Average Velocity, V (NEH table 15-3)		ft/s	**1.30**	**1.29**	**0.94**
11. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	**0.021**	+ **0.034**	+ **0.094**

Shallow Conc. Flow Sub-Total **0.149 hours**

Channel Flow

		Segment ID			
12. Flow Length, L		ft			
13. Cross Sectional flow area, a		ft^2			
14. Wetted Perimeter, P_w		ft			
15. Hydraulic Radius, r	$r = a / P_w$	ft			
16. Channel Slope, s		ft/ft			
17. Manning's Roughness Coeff., n					
18. Velocity, V	$V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s			
19. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.178 hours**
Total Tc (minutes) =	**11 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: Present [✓ Developed] **Proposed Watershed 2C - Pervious (Current)**

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1		
1. Surface Description (NEH table 15-1)			Woods Light Underbrush		
2. Manning's Roughness Coeff., n (NEH table 15-1)			0.40		
3. Flow Length, L (total L < 100 ft)		ft	100		
4. Two-year 24-hr rainfall, P_2		in	3.35		
5. Land Slope, s		ft/ft	0.007		
6. Compute T_t	$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.535	+	+

Sheet Flow Sub-Total **0.535 hours**

Shallow Concentrated Flow

		Segment ID	2		
7. Surface Description			Woodlands		
8. Flow Length, L		ft	221		
9. Watercourse Slope, s		ft/ft	0.047		
10. Average Velocity, V (NEH table 15-3)		ft/s	1.09		
11. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	0.056	+	+

Shallow Conc. Flow Sub-Total **0.056 hours**

Channel Flow

		Segment ID			
12. Flow Length, L		ft			
13. Cross Sectional flow area, a		ft^2			
14. Wetted Perimeter, P_w		ft			
15. Hydraulic Radius, r	$r = a / P_w$	ft			
16. Channel Slope, s		ft/ft			
17. Manning's Roughness Coeff., n					
18. Velocity, V	$V = (1.49\,r^{2/3}\,s^{1/2}) / n$	ft/s			
19. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.592 hours**
Total Tc (minutes) =	**35 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] **Proposed Watershed 2C - Pervious (Future)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

$$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$$

	Segment ID	**1**		
1. Surface Description (NEH table 15-1)		**Woods Light Underbrush**		
2. Manning's Roughness Coeff., n (NEH table 15-1)		**0.40**		
3. Flow Length, L (total L < 100 ft)	ft	**100**		
4. Two-year 24-hr rainfall, P_2	in	**3.99**		
5. Land Slope, s	ft/ft	**0.007**		
6. Compute T_t	hr	**0.491**	+	+

Sheet Flow Sub-Total **0.491 hours**

Shallow Concentrated Flow

$$T_t = \frac{L}{3600\,V}$$

	Segment ID	**2**		
7. Surface Description		**Woodlands**		
8. Flow Length, L	ft	**221**		
9. Watercourse Slope, s	ft/ft	**0.047**		
10. Average Velocity, V (NEH table 15-3)	ft/s	**1.09**		
11. Compute T_t	hr	**0.056**	+	+

Shallow Conc. Flow Sub-Total **0.056 hours**

Channel Flow

$$r = a / P_w$$

$$V = (1.49\, r^{2/3}\, s^{1/2}) / n$$

$$T_t = \frac{L}{3600\,V}$$

	Segment ID			
12. Flow Length, L	ft			
13. Cross Sectional flow area, a	ft^2			
14. Wetted Perimeter, P_w	ft			
15. Hydraulic Radius, r	ft			
16. Channel Slope, s	ft/ft			
17. Manning's Roughness Coeff., n				
18. Velocity, V	ft/s			
19. Compute T_t	hr		+	+

Channel Flow Sub-Total **0.000 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.547 hours**
Total Tc (minutes) =	**33 minutes**

PROPOSED RUNOFF HYDROGRAPHS "CURRENT" 2-, 10-, AND 100-YEAR STORMS

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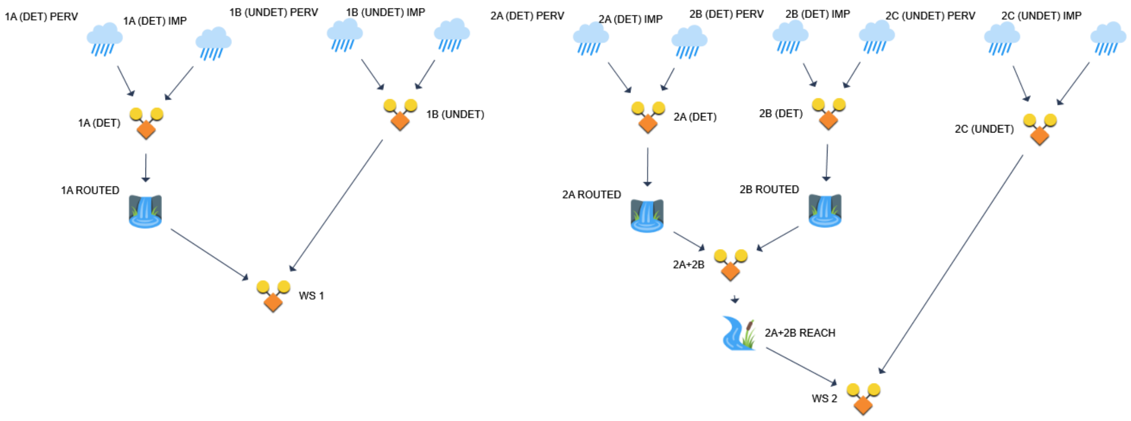
Basin Model

Hydrology Studio v 3.0.0.44

File: 102054601 - Proposed.hys
07-23-2026


1A (DET) PERV
1A (DET) IMP
1B (UNDET) PERV
1B (UNDET) IMP
2A (DET) PERV
2A (DET) IMP
2B (DET) PERV
2B (DET) IMP
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1B (UNDET)
2A (DET)
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2C (UNDET)
1A ROUTED
2A ROUTED
2B ROUTED
2A+2B
WS 1
2A+2B REACH
WS 2

Hydrograph by Return Period

Hydrology Studio v 3.0.0.44

File: 102054601 - Proposed.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	1A (DET) PERV		0.231			0.937			2.827
2	NRCS Runoff	1A (DET) IMP		3.752			5.872			10.13
3	Junction	1A (DET)		3.892			6.607			12.50
4	Pond Route	1A ROUTED		1.589			2.720			4.671
5	NRCS Runoff	1B (UNDET) PERV		0.084			1.119			6.137
6	NRCS Runoff	1B (UNDET) IMP		0.300			0.470			0.810
7	Junction	1B (UNDET)		0.300			1.239			6.561
8	Junction	WS 1		1.830			3.944			11.19
9	NRCS Runoff	2A (DET) PERV		0.322			1.413			4.395
10	NRCS Runoff	2A (DET) IMP		3.984			6.236			10.76
11	Junction	2A (DET)		4.165			7.335			14.43
12	Pond Route	2A ROUTED		1.278			2.102			4.150
13	NRCS Runoff	2B (DET) PERV		0.257			0.963			2.812
14	NRCS Runoff	2B (DET) IMP		4.283			6.703			11.56
15	Junction	2B (DET)		4.536			7.666			14.38
16	Pond Route	2B ROUTED		0.733			1.234			2.236
17	Junction	2A+2B		1.994			3.328			6.373
18	Reach	2A+2B REACH		1.910			3.306			6.359
19	NRCS Runoff	2C (UNDET) PERV		0.603			3.391			12.90
20	NRCS Runoff	2C (UNDET) IMP		3.269			5.122			8.841
21	Junction	2C (UNDET)		3.330			6.623			18.14
22	Junction	WS 2		4.514			9.642			24.29

Hydrograph 2-yr Summary

Hydrology Studio v 3.0.0.44

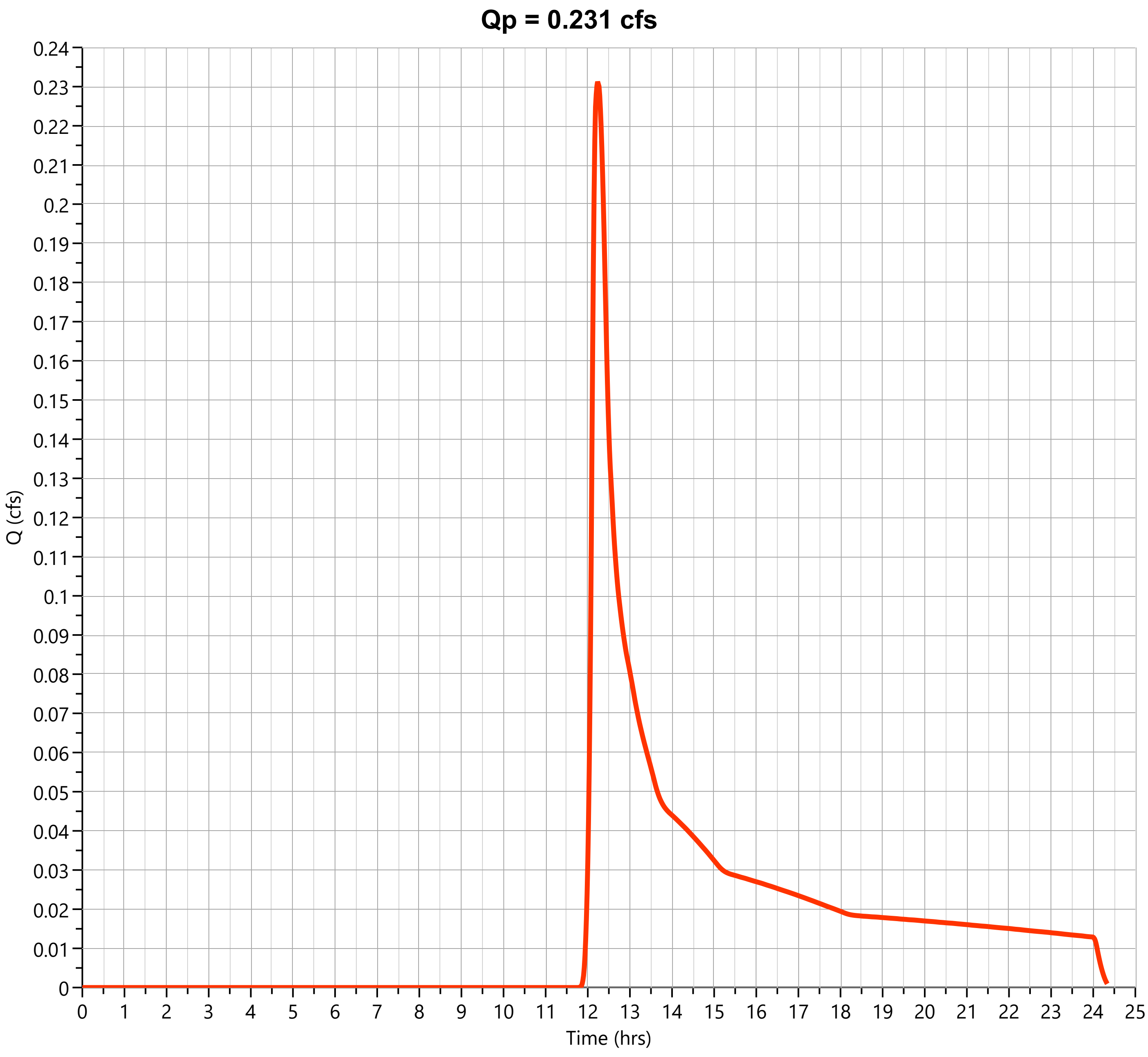
File: 102054601 - Proposed.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	1A (DET) PERV	0.231	12.23	1,476	----		
2	NRCS Runoff	1A (DET) IMP	3.752	12.10	12,660	----		
3	Junction	1A (DET)	3.892	12.10	14,136	1, 2		
4	Pond Route	1A ROUTED	1.589	12.22	9,845	3	103.53	6,478
5	NRCS Runoff	1B (UNDET) PERV	0.084	13.20	1,961	----		
6	NRCS Runoff	1B (UNDET) IMP	0.300	12.13	1,232	----		
7	Junction	1B (UNDET)	0.300	12.13	3,193	5, 6		
8	Junction	WS 1	1.830	12.18	13,039	4, 7		
9	NRCS Runoff	2A (DET) PERV	0.322	12.25	2,189	----		
10	NRCS Runoff	2A (DET) IMP	3.984	12.10	13,444	----		
11	Junction	2A (DET)	4.165	12.10	15,633	9, 10		
12	Pond Route	2A ROUTED	1.278	12.33	11,135	11	104.23	7,146
13	NRCS Runoff	2B (DET) PERV	0.257	12.12	984	----		
14	NRCS Runoff	2B (DET) IMP	4.283	12.10	14,453	----		
15	Junction	2B (DET)	4.536	12.10	15,436	13, 14		
16	Pond Route	2B ROUTED	0.733	12.55	10,579	15	103.34	8,542
17	Junction	2A+2B	1.994	12.37	21,714	12, 16		
18	Reach	2A+2B REACH	1.910	12.63	21,654	17		
19	NRCS Runoff	2C (UNDET) PERV	0.603	13.13	9,669	----		
20	NRCS Runoff	2C (UNDET) IMP	3.269	12.18	16,958	----		
21	Junction	2C (UNDET)	3.330	12.18	26,628	19, 20		
22	Junction	WS 2	4.514	12.25	48,282	18, 21		

1A (DET) PERV

Hyd. No. 1

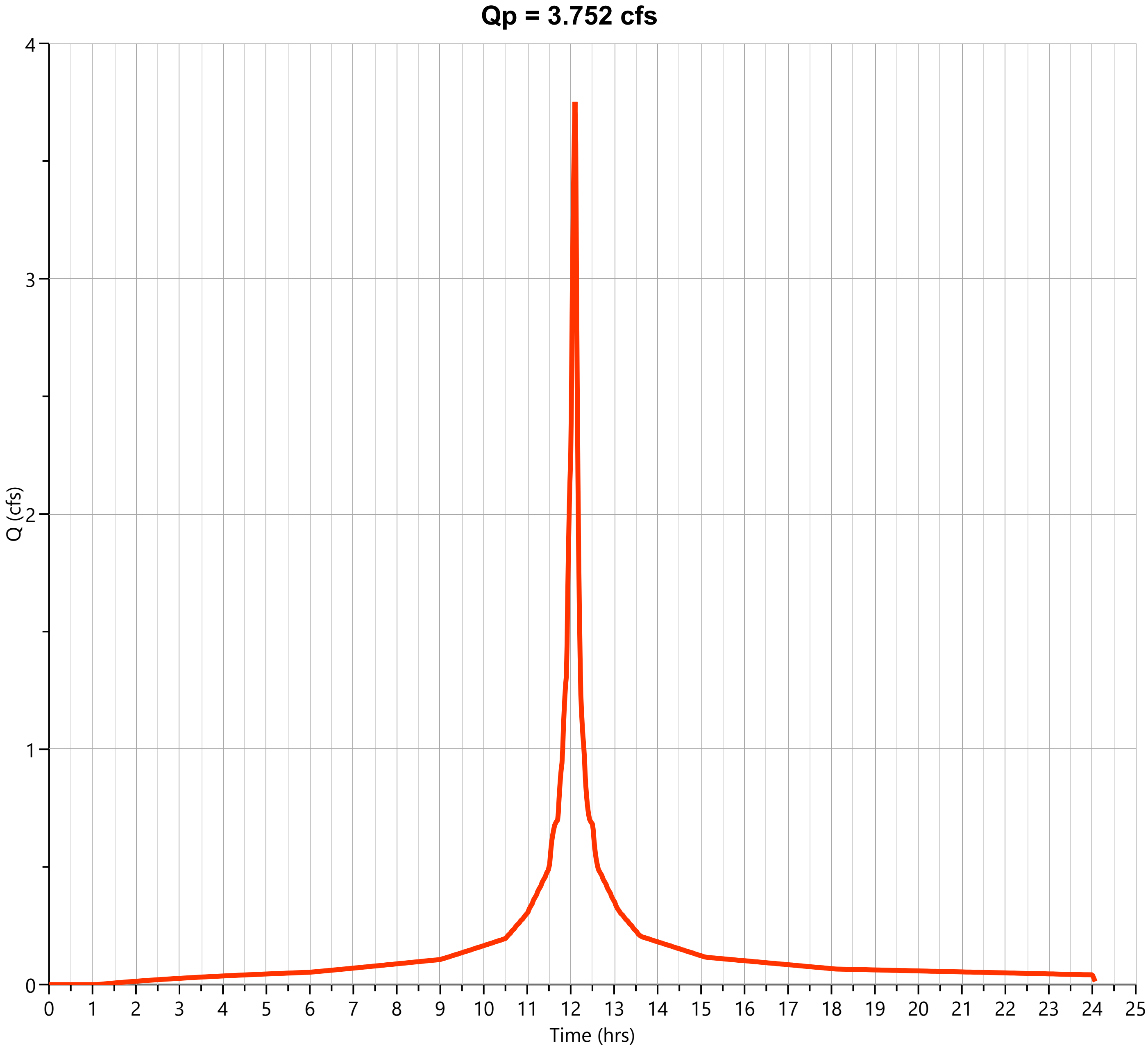
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.231 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.23 hrs
Time Interval	= 1 min	Runoff Volume	= 1,476 cuft
Drainage Area	= 0.81 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 9.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1A (DET) IMP

Hyd. No. 2

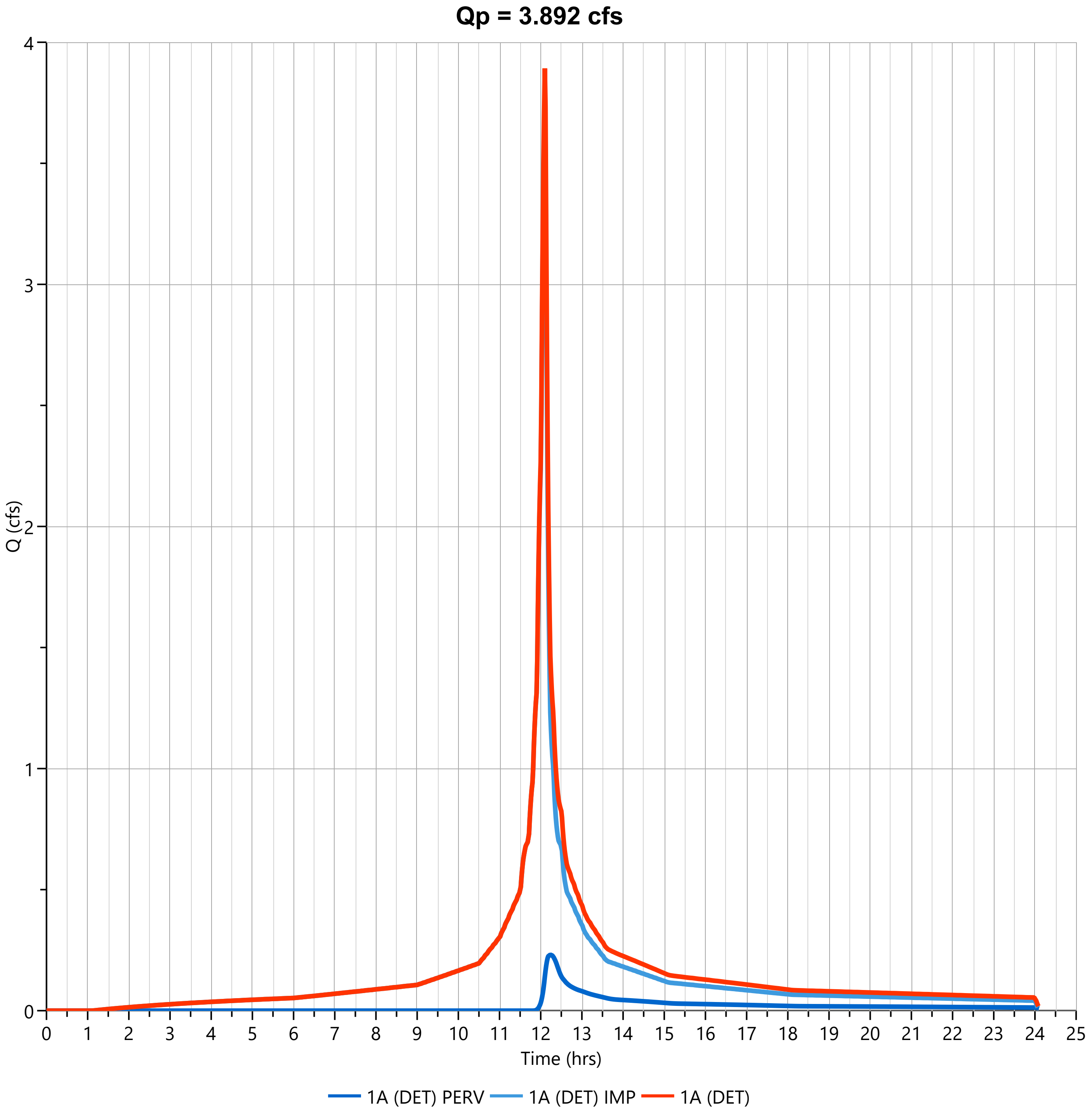
Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.752 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 12,660 cuft
Drainage Area	= 1.13 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1A (DET)

Hyd. No. 3

Hydrograph Type	= Junction	Peak Flow	= 3.892 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 14,136 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.94 ac



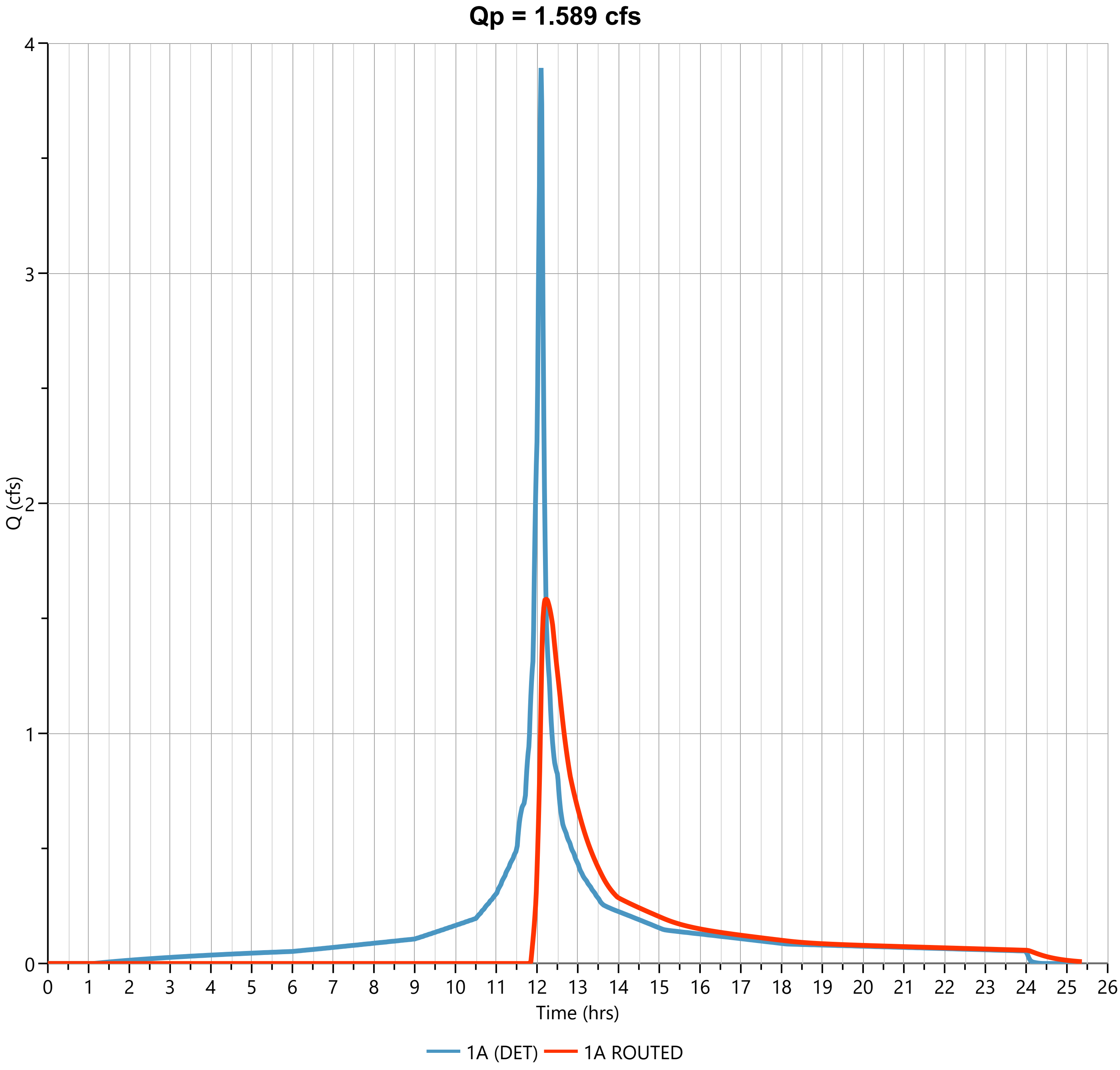
1A ROUTED

Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 1.589 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 9,845 cuft
Inflow Hydrograph	= 3 - 1A (DET)	Max. Elevation	= 103.53 ft
Pond Name	= Basin 2	Max. Storage	= 6,478 cuft

Pond Routing by Storage Indication Method

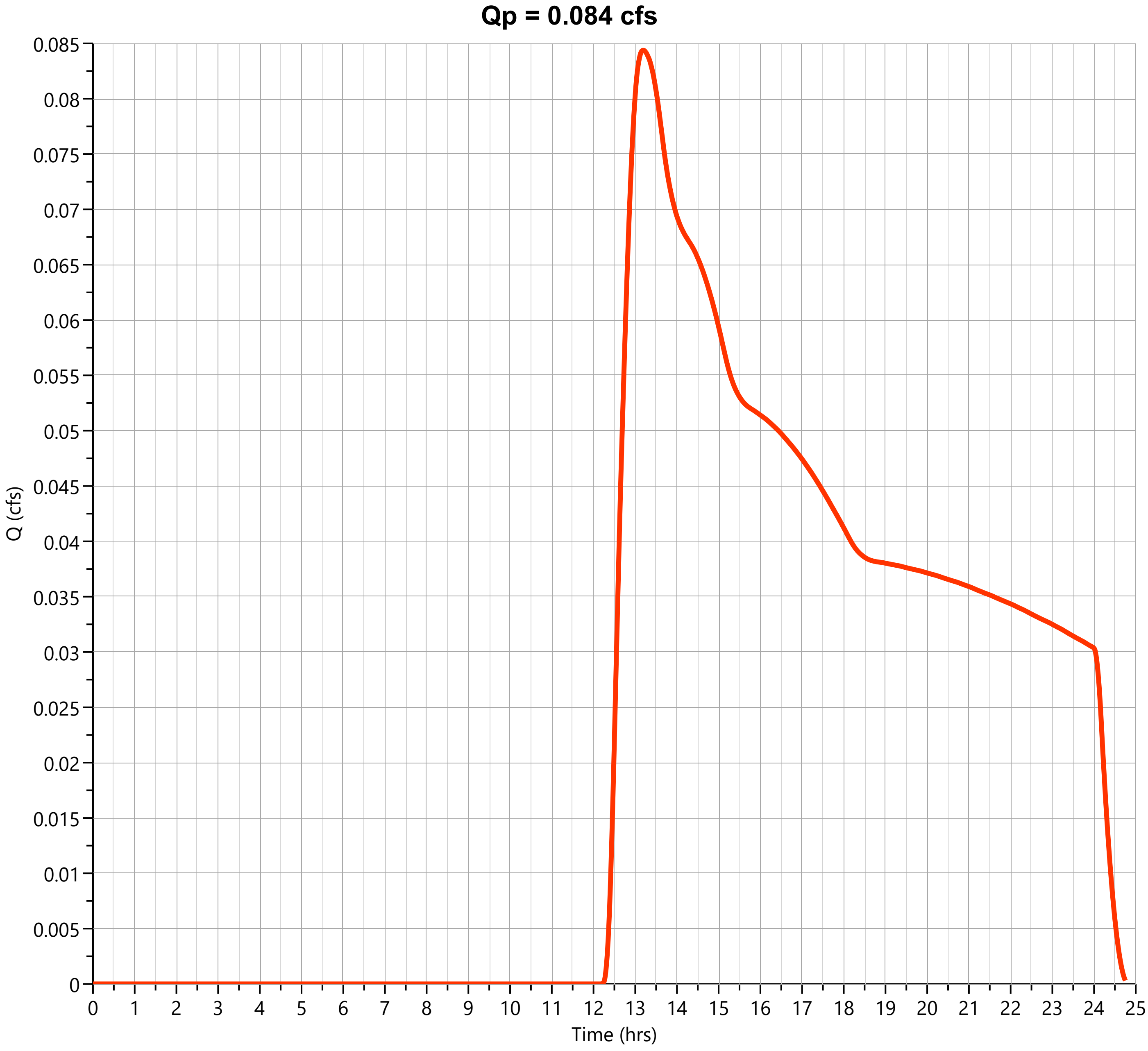
Center of mass detention time = 2.00 hrs



1B (UNDET) PERV

Hyd. No. 5

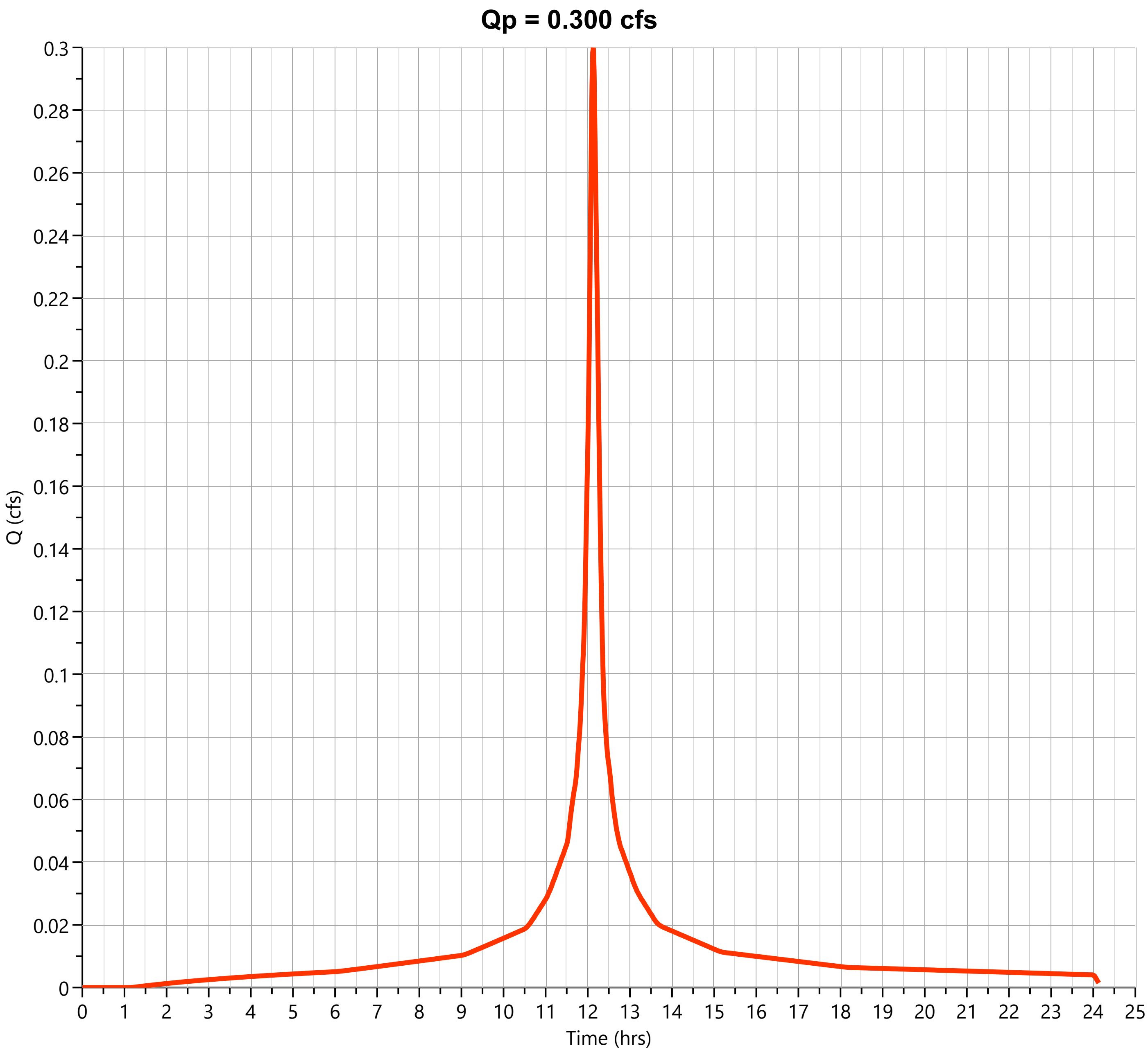
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.084 cfs
Storm Frequency	= 2-yr	Time to Peak	= 13.20 hrs
Time Interval	= 1 min	Runoff Volume	= 1,961 cuft
Drainage Area	= 3.92 ac	Curve Number	= 49.00
Tc Method	= User	Time of Conc. (Tc)	= 18.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1B (UNDET) IMP

Hyd. No. 6

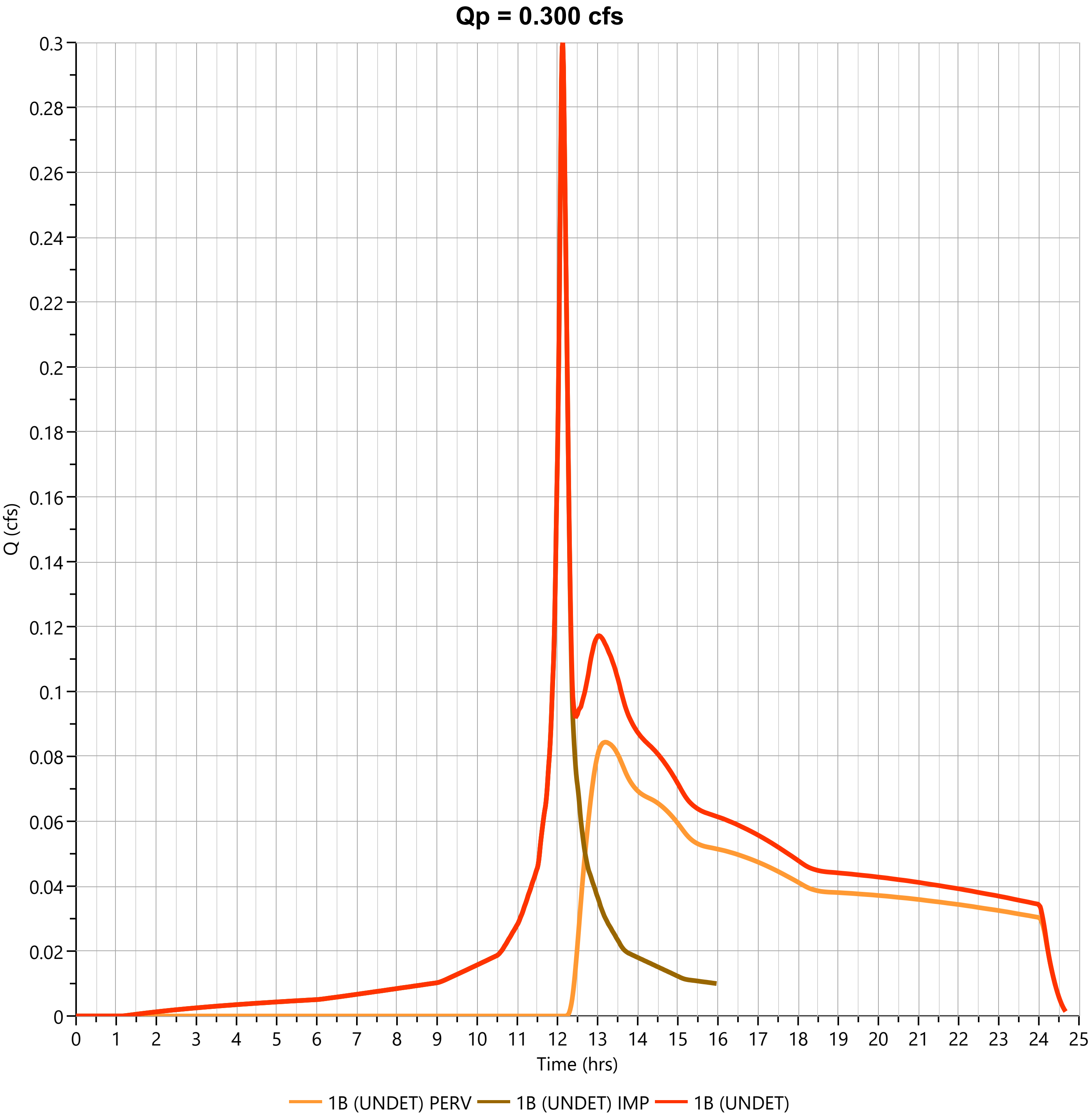
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.300 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Runoff Volume	= 1,232 cuft
Drainage Area	= 0.11 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1B (UNDET)

Hyd. No. 7

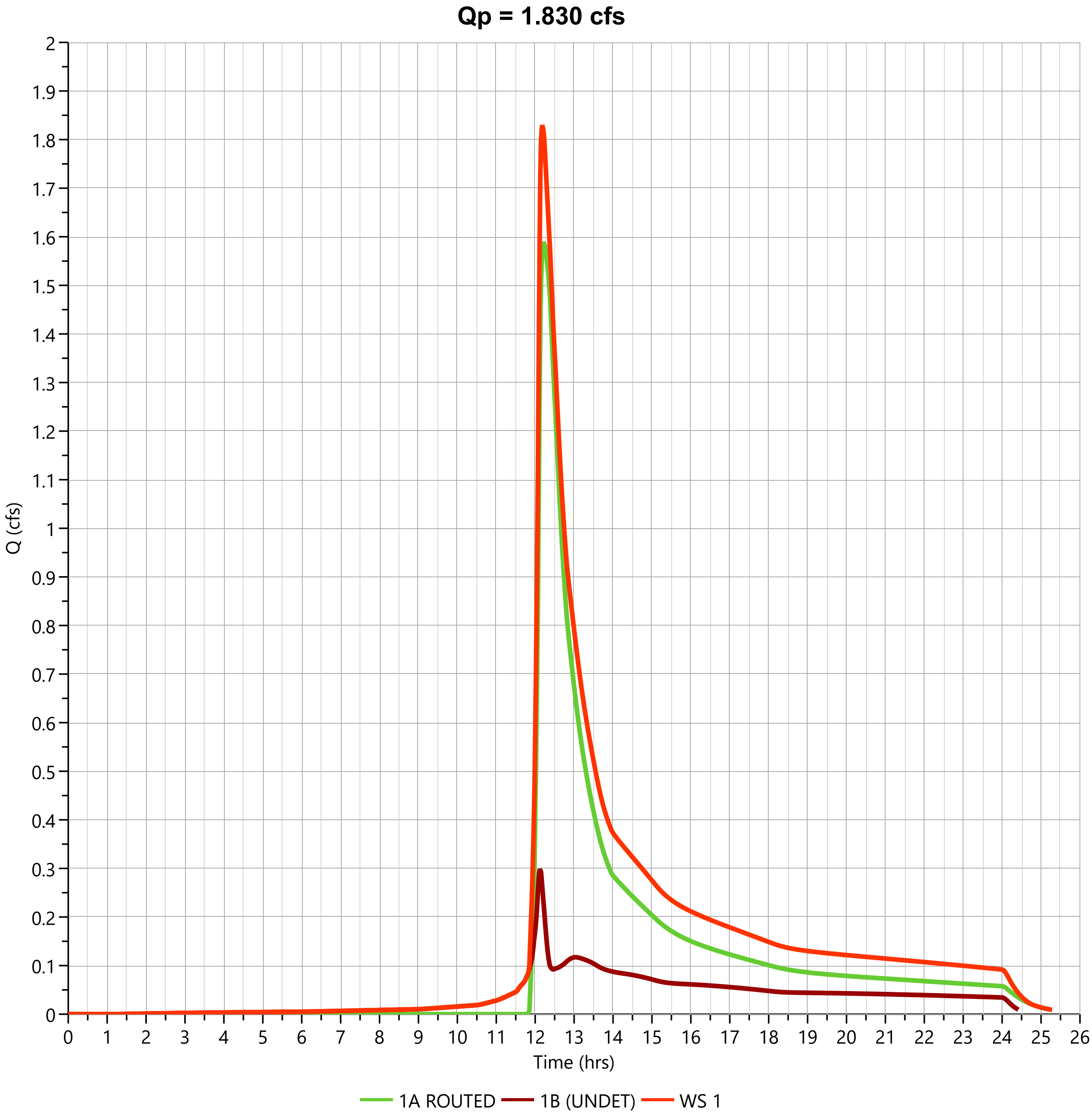
Hydrograph Type	= Junction	Peak Flow	= 0.300 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,193 cuft
Inflow Hydrographs	= 5, 6	Total Contrib. Area	= 4.03 ac



WS 1

Hyd. No. 8

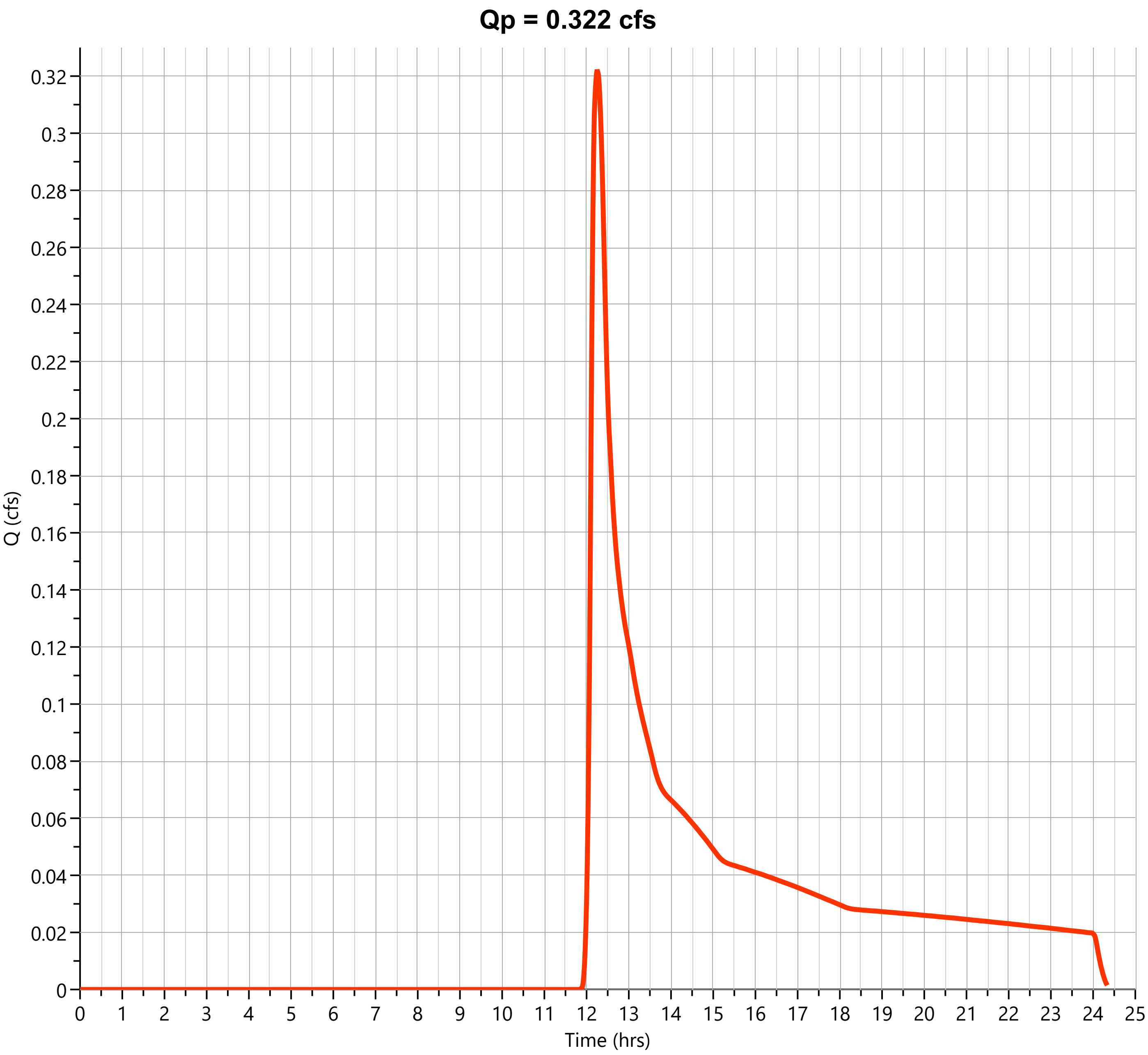
Hydrograph Type	= Junction	Peak Flow	= 1.830 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Hydrograph Volume	= 13,039 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



2A (DET) PERV

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.322 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.25 hrs
Time Interval	= 1 min	Runoff Volume	= 2,189 cuft
Drainage Area	= 1.3 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284

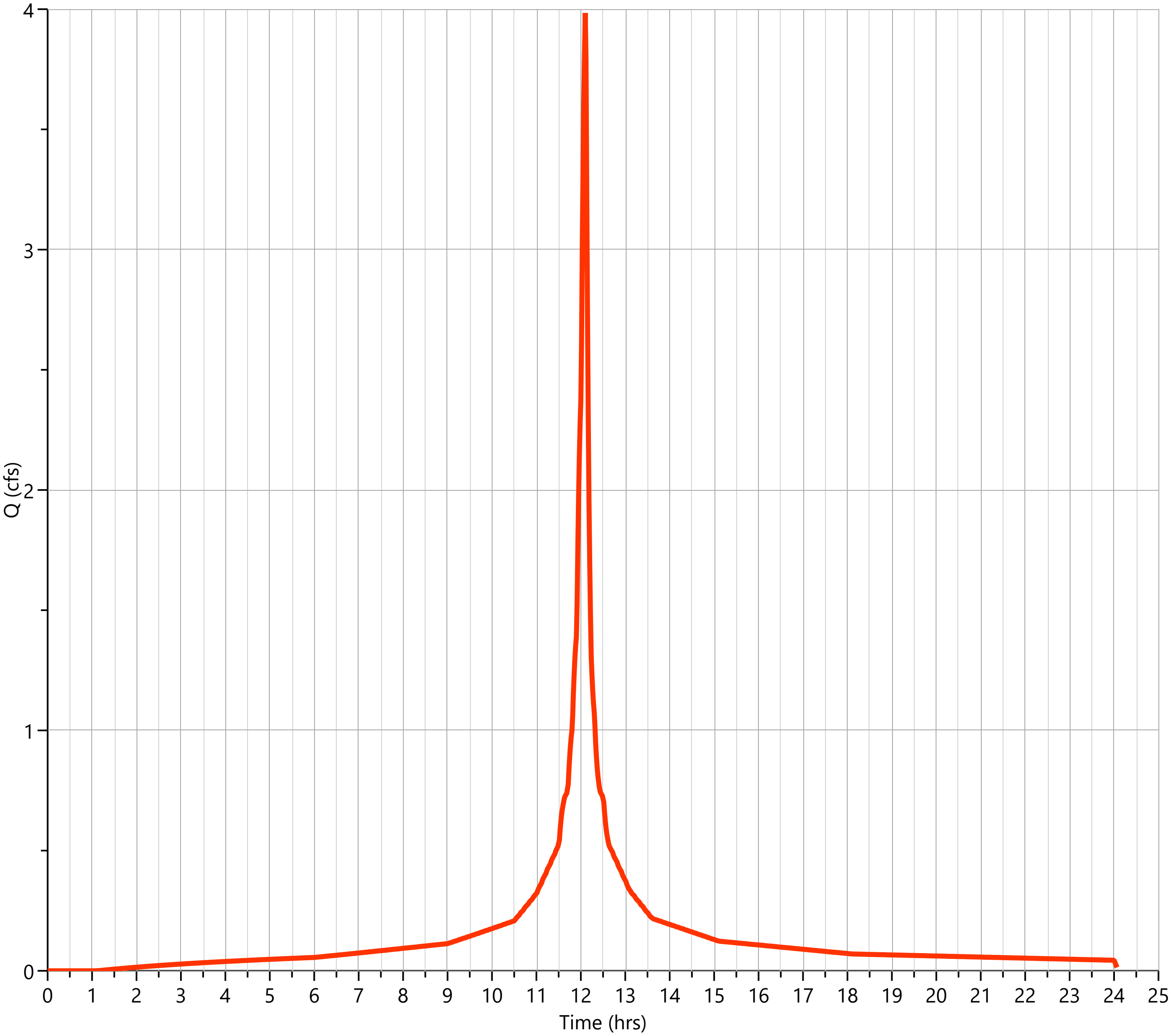


2A (DET) IMP

Hyd. No. 10

Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.984 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 13,444 cuft
Drainage Area	= 1.2 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284

Qp = 3.984 cfs

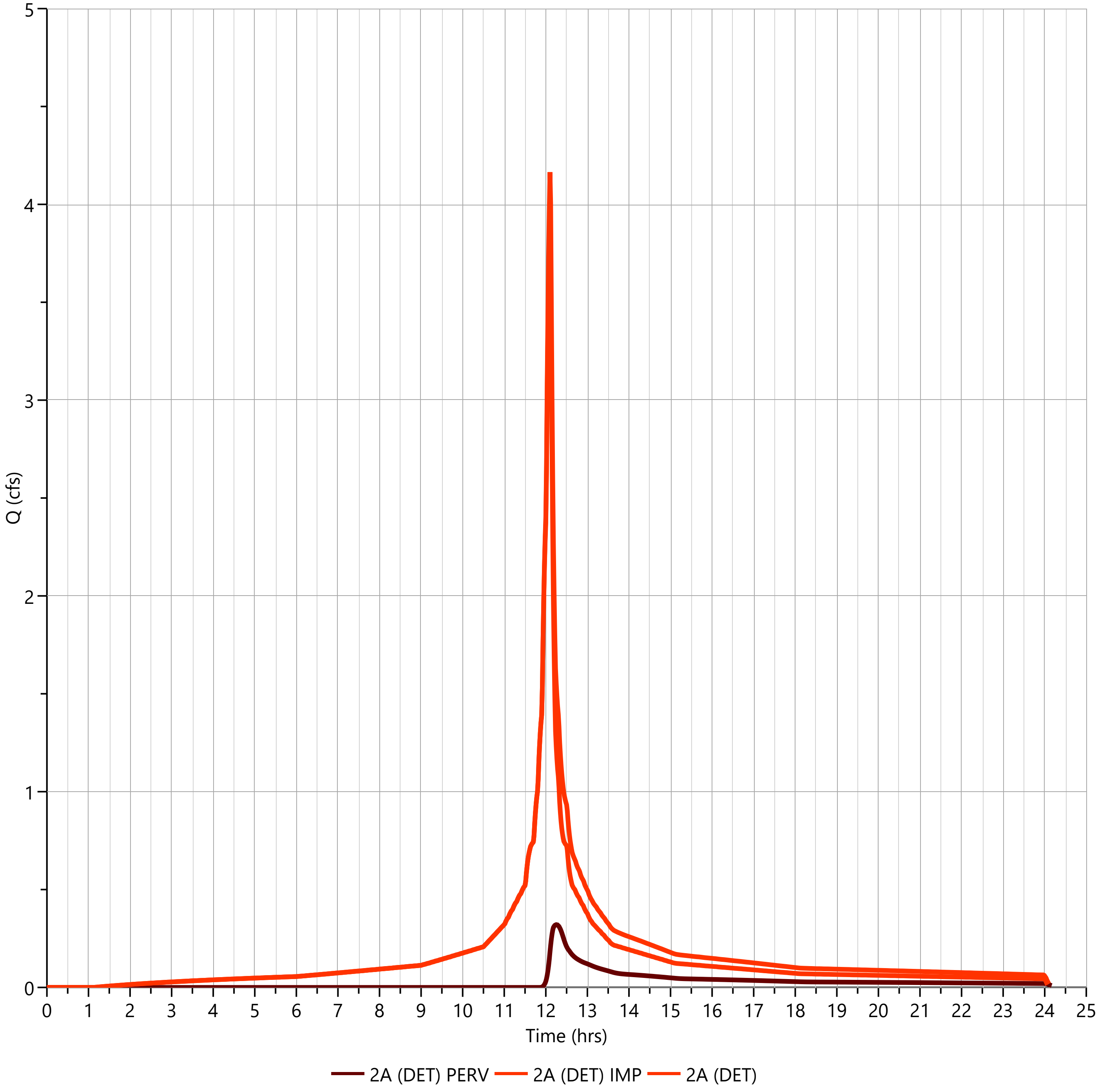


2A (DET)

Hyd. No. 11

Hydrograph Type	= Junction	Peak Flow	= 4.165 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 15,633 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 2.5 ac

Qp = 4.165 cfs



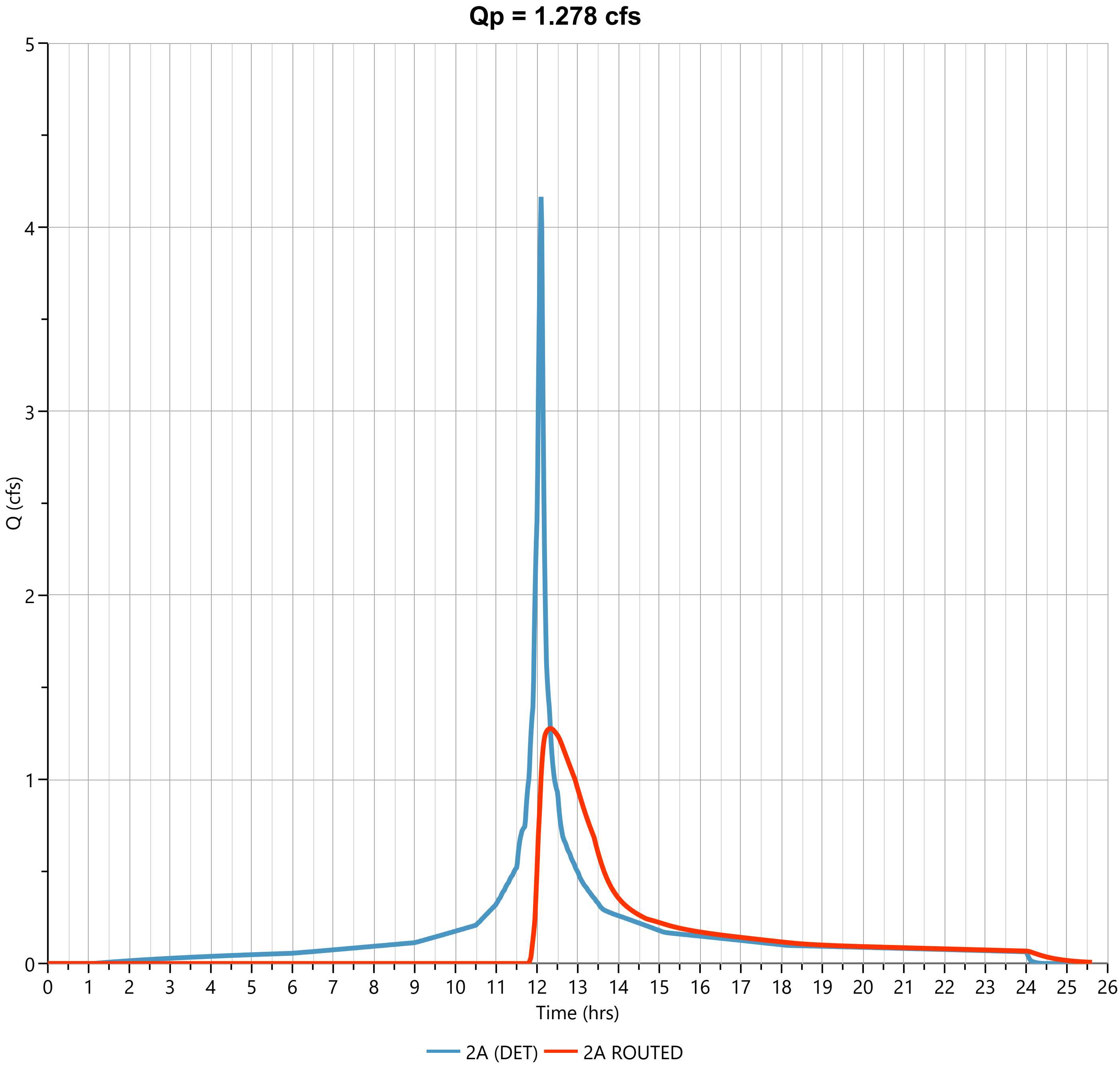
2A ROUTED

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 1.278 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.33 hrs
Time Interval	= 1 min	Hydrograph Volume	= 11,135 cuft
Inflow Hydrograph	= 11 - 2A (DET)	Max. Elevation	= 104.23 ft
Pond Name	= Basin 1	Max. Storage	= 7,146 cuft

Pond Routing by Storage Indication Method

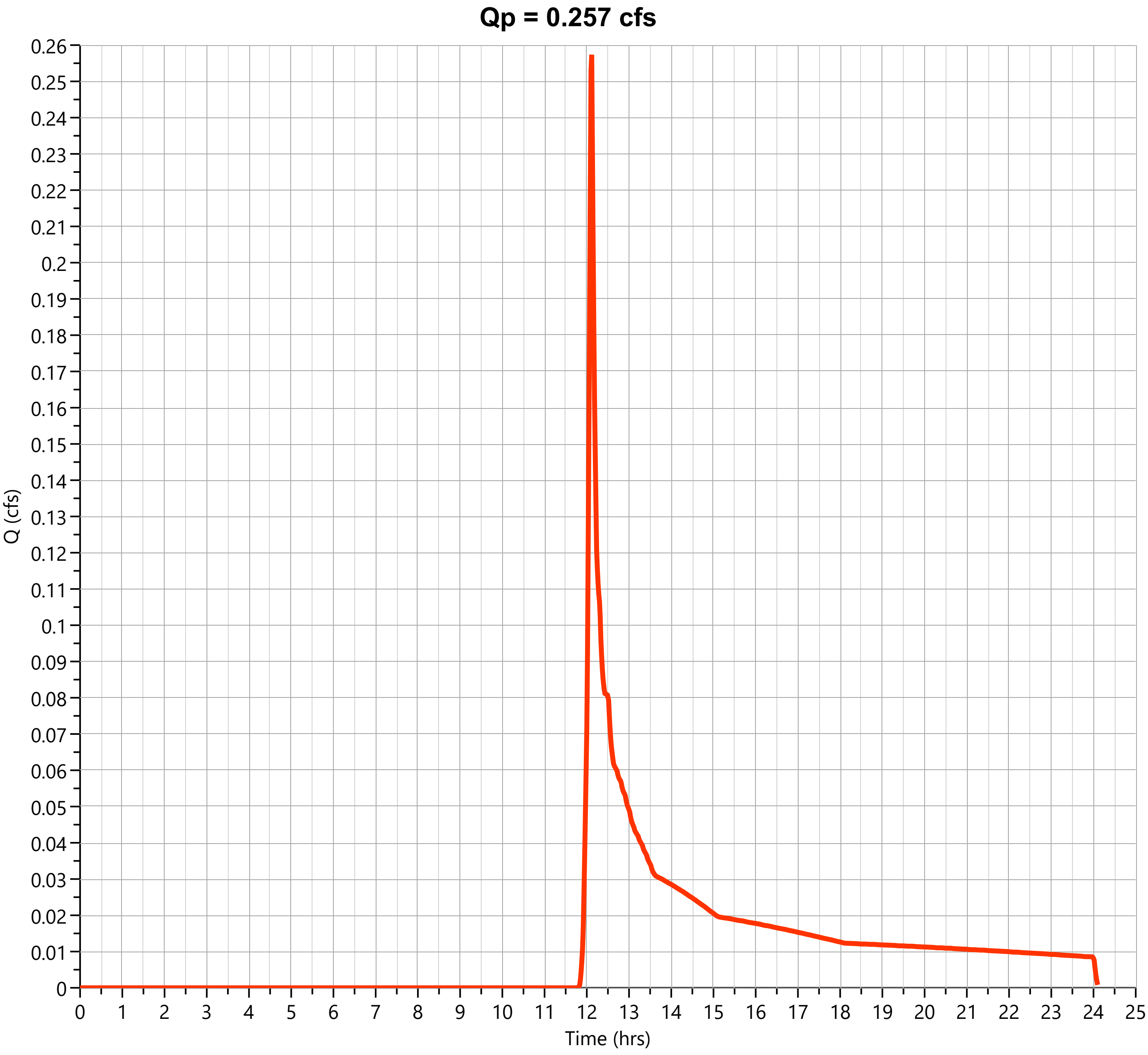
Center of mass detention time = 2.00 hrs



2B (DET) PERV

Hyd. No. 13

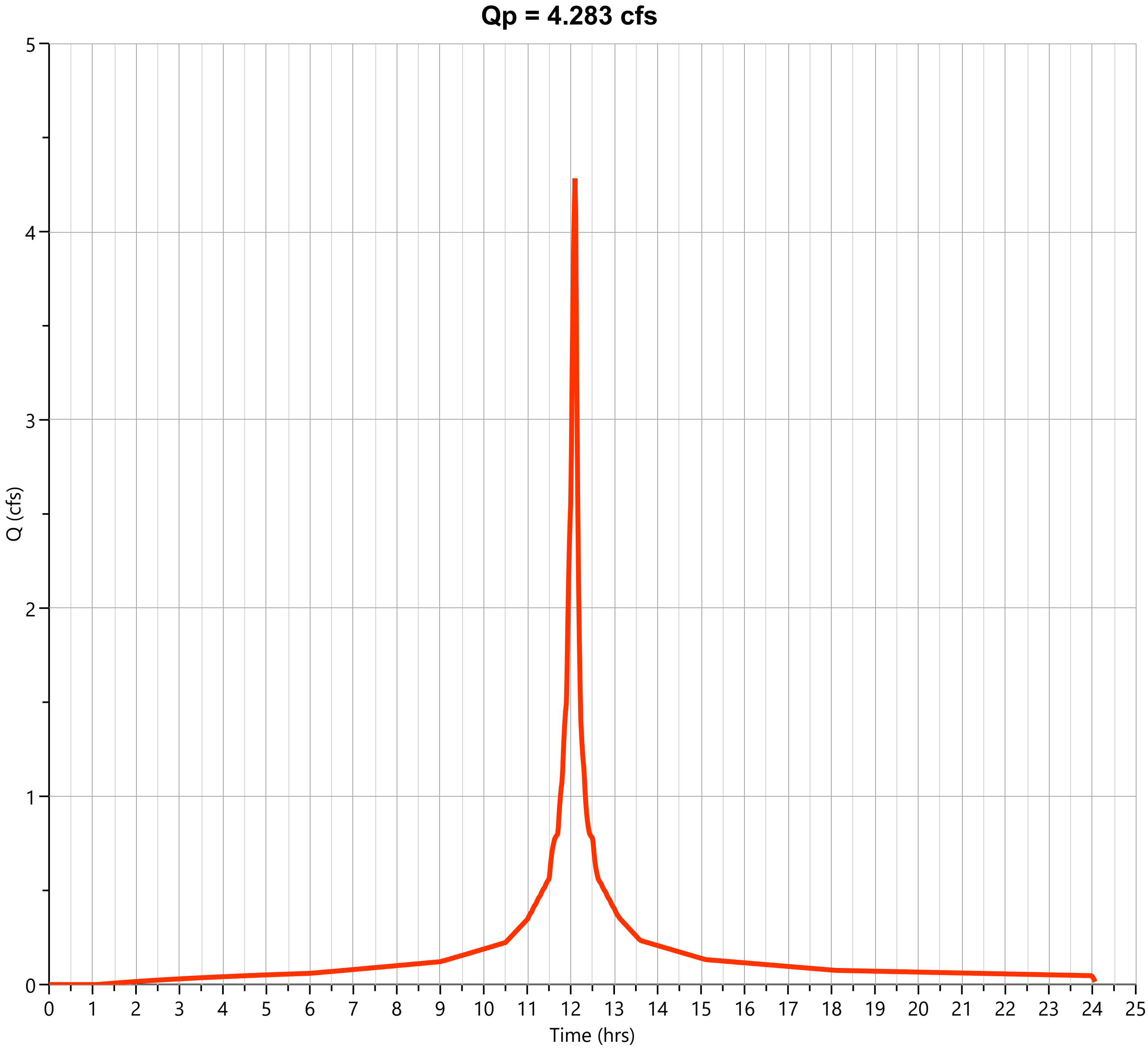
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.257 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.12 hrs
Time Interval	= 1 min	Runoff Volume	= 984 cuft
Drainage Area	= 0.54 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 2.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2B (DET) IMP

Hyd. No. 14

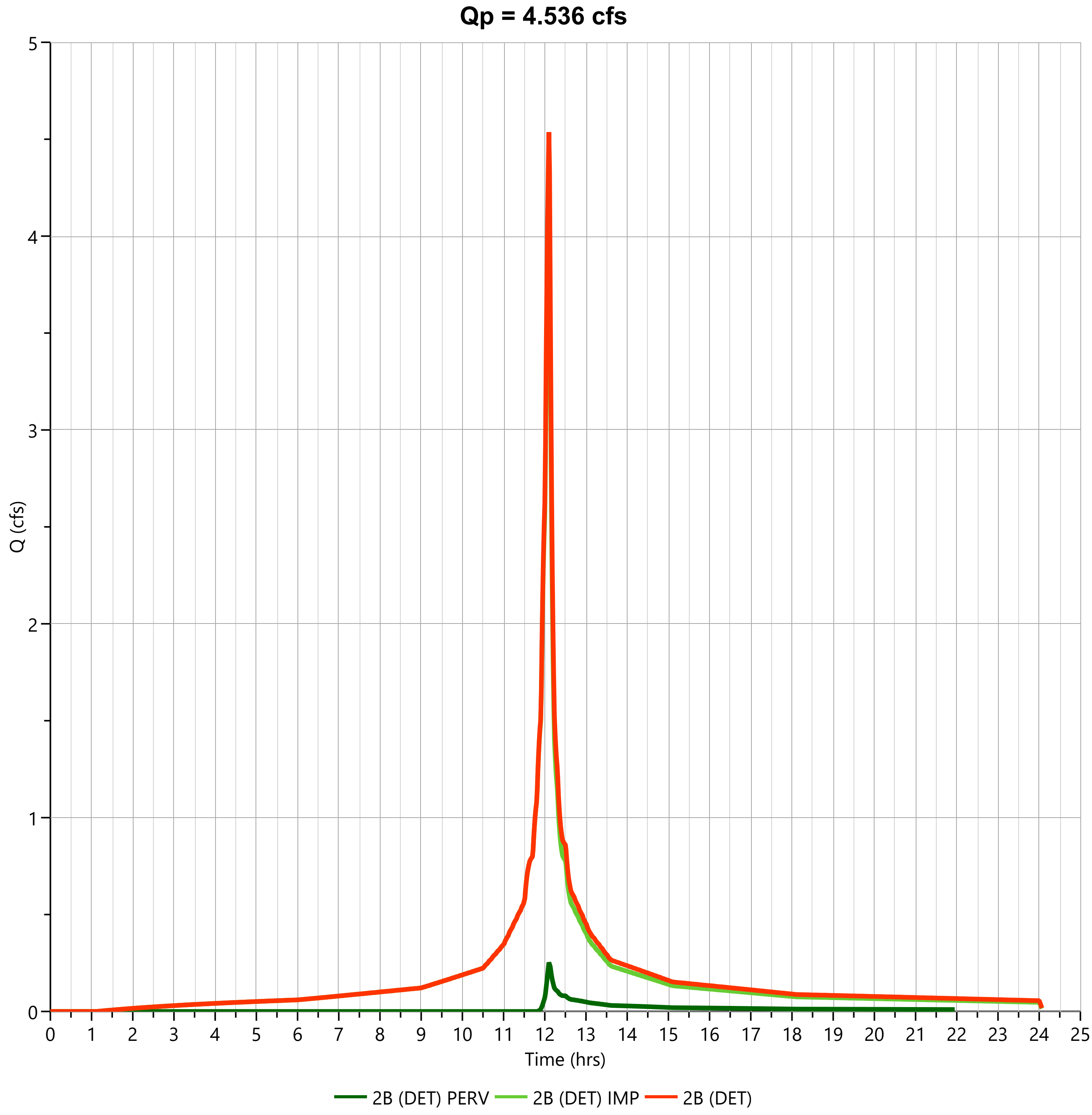
Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.283 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 14,453 cuft
Drainage Area	= 1.29 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2B (DET)

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 4.536 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 15,436 cuft
Inflow Hydrographs	= 13, 14	Total Contrib. Area	= 1.83 ac



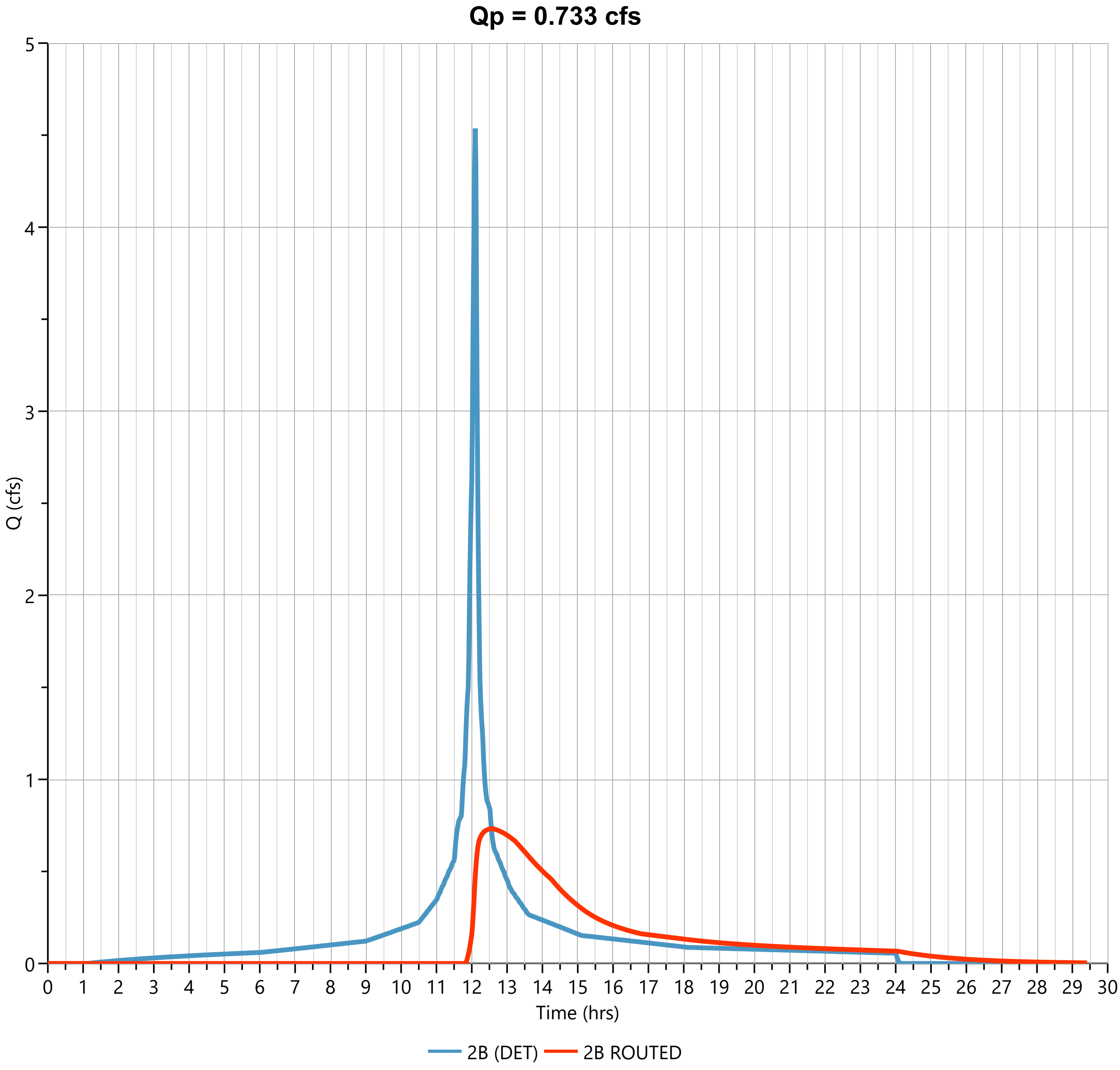
2B ROUTED

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.733 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.55 hrs
Time Interval	= 1 min	Hydrograph Volume	= 10,579 cuft
Inflow Hydrograph	= 15 - 2B (DET)	Max. Elevation	= 103.34 ft
Pond Name	= Basin 3	Max. Storage	= 8,542 cuft

Pond Routing by Storage Indication Method

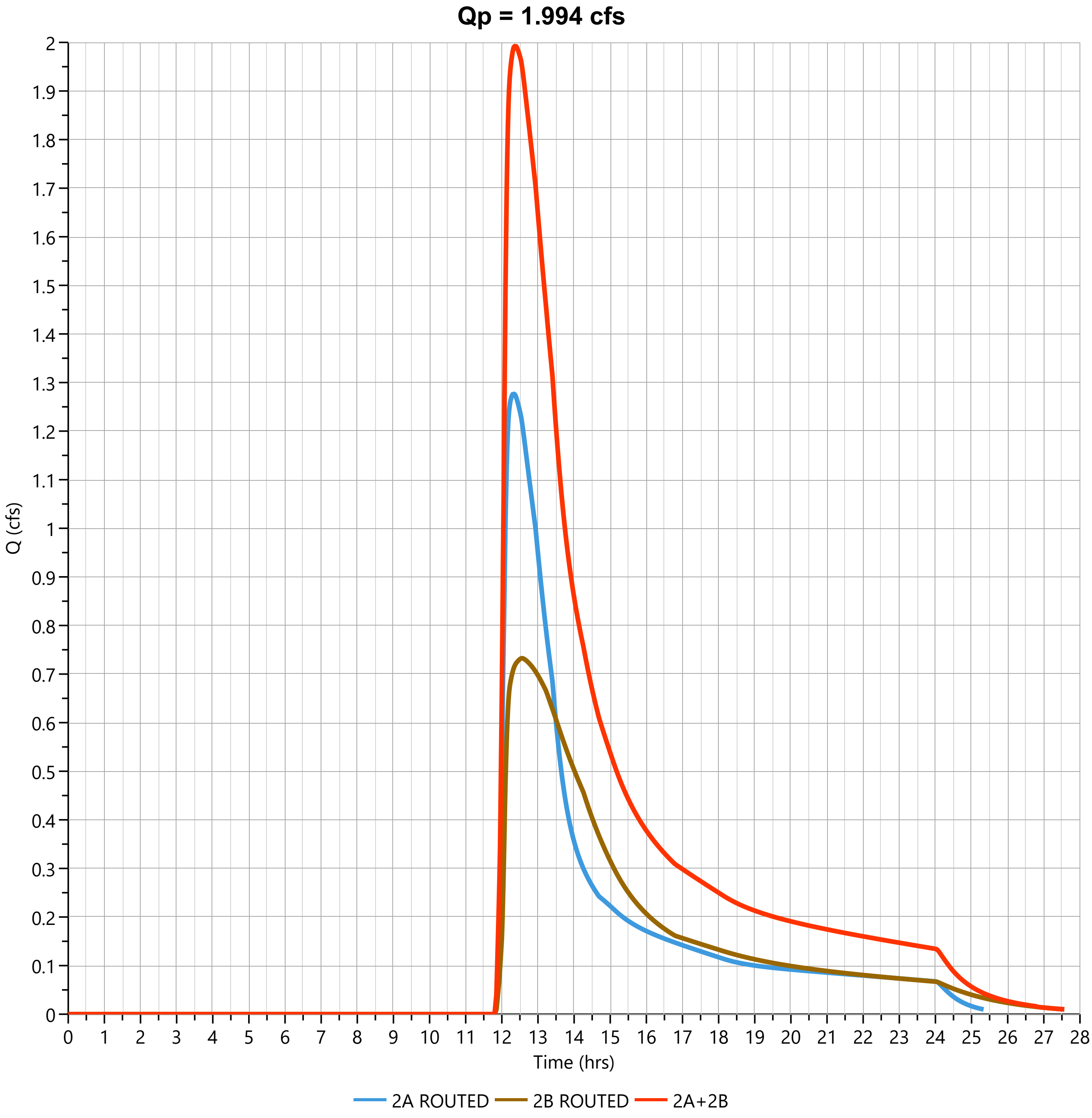
Center of mass detention time = 3.01 hrs



2A+2B

Hyd. No. 17

Hydrograph Type	= Junction	Peak Flow	= 1.994 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.37 hrs
Time Interval	= 1 min	Hydrograph Volume	= 21,714 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac

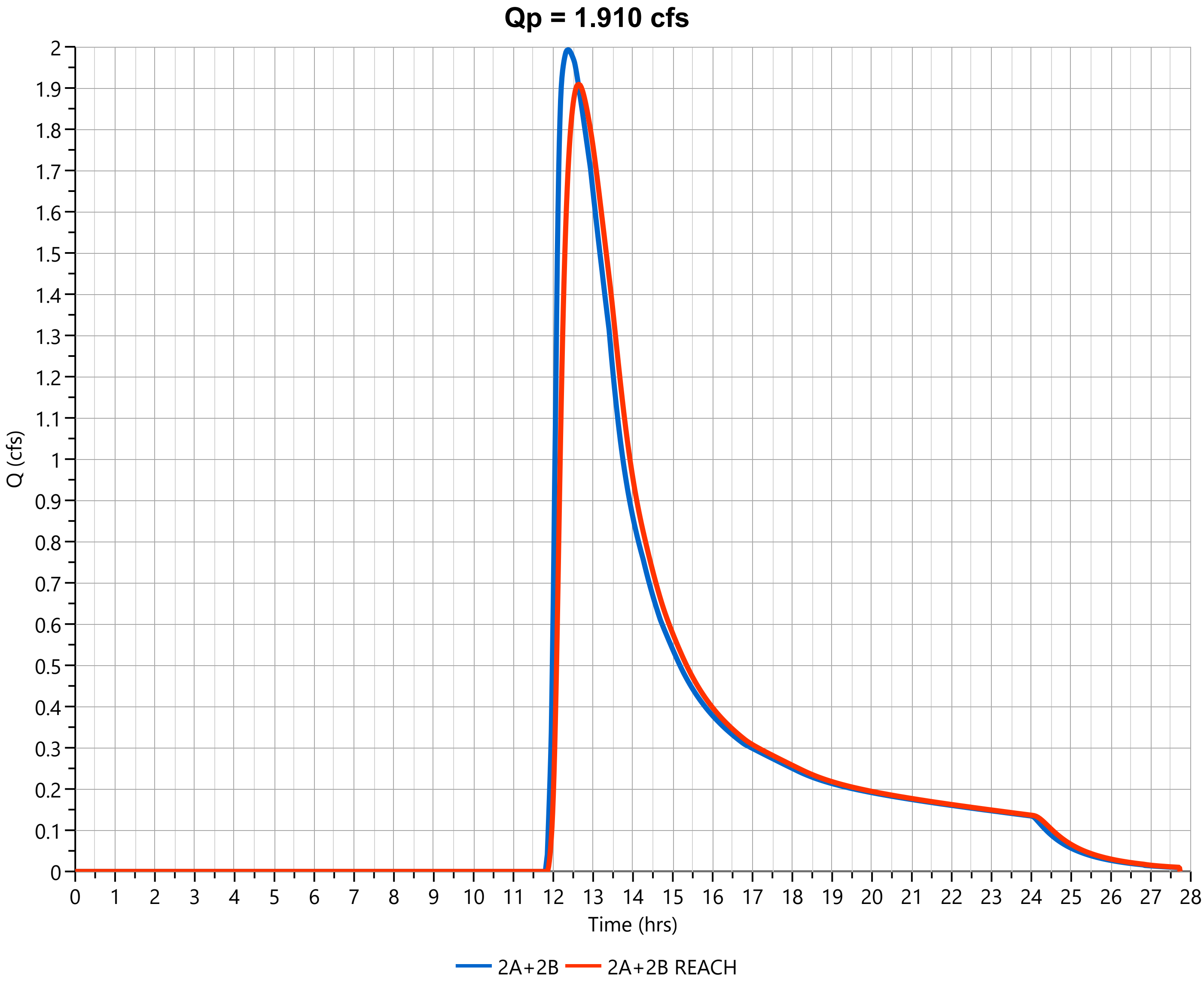


2A+2B REACH

Hyd. No. 18

Hydrograph Type	= Reach	Peak Flow	= 1.910 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.63 hrs
Time Interval	= 1 min	Hydrograph Volume	= 21,654 cuft
Inflow Hydrograph	= 17 - 2A+2B	Section Type	= Circular
Reach Length	= 435 ft	Channel Slope	= 0.50 %
Manning's n	= 0.012	Pipe Diameter	= 2.00 ft
Side Slope (h:v)	= n/a	Maximum Depth	= n/a
Rating Curve X	= 5.318	Average Velocity	= 0.63 ft/s
Rating Curve m	= 1.250	Routing Coeff.	= 0.1037

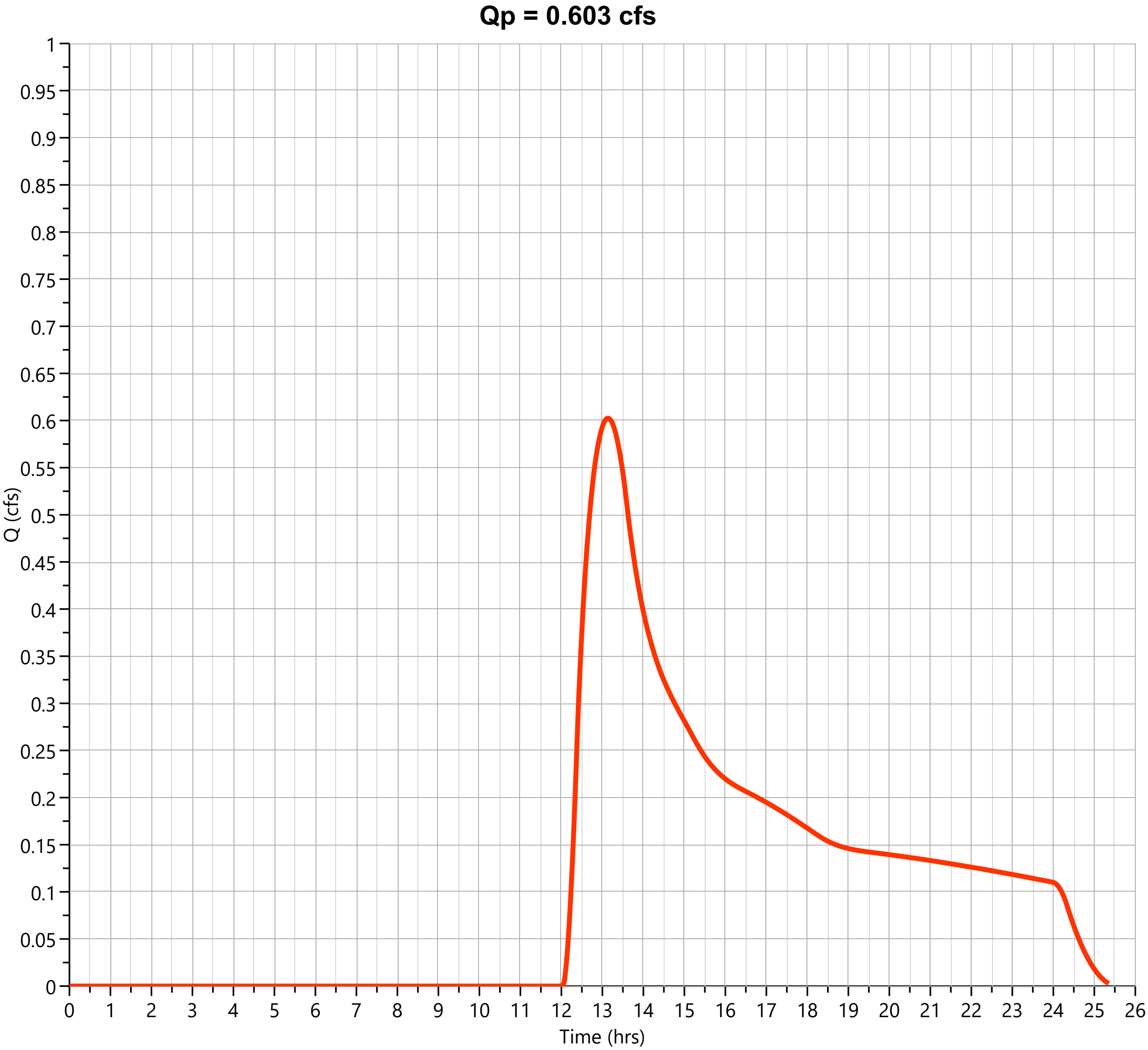
Modified Att-Kin routing method



2C (UNDET) PERV

Hyd. No. 19

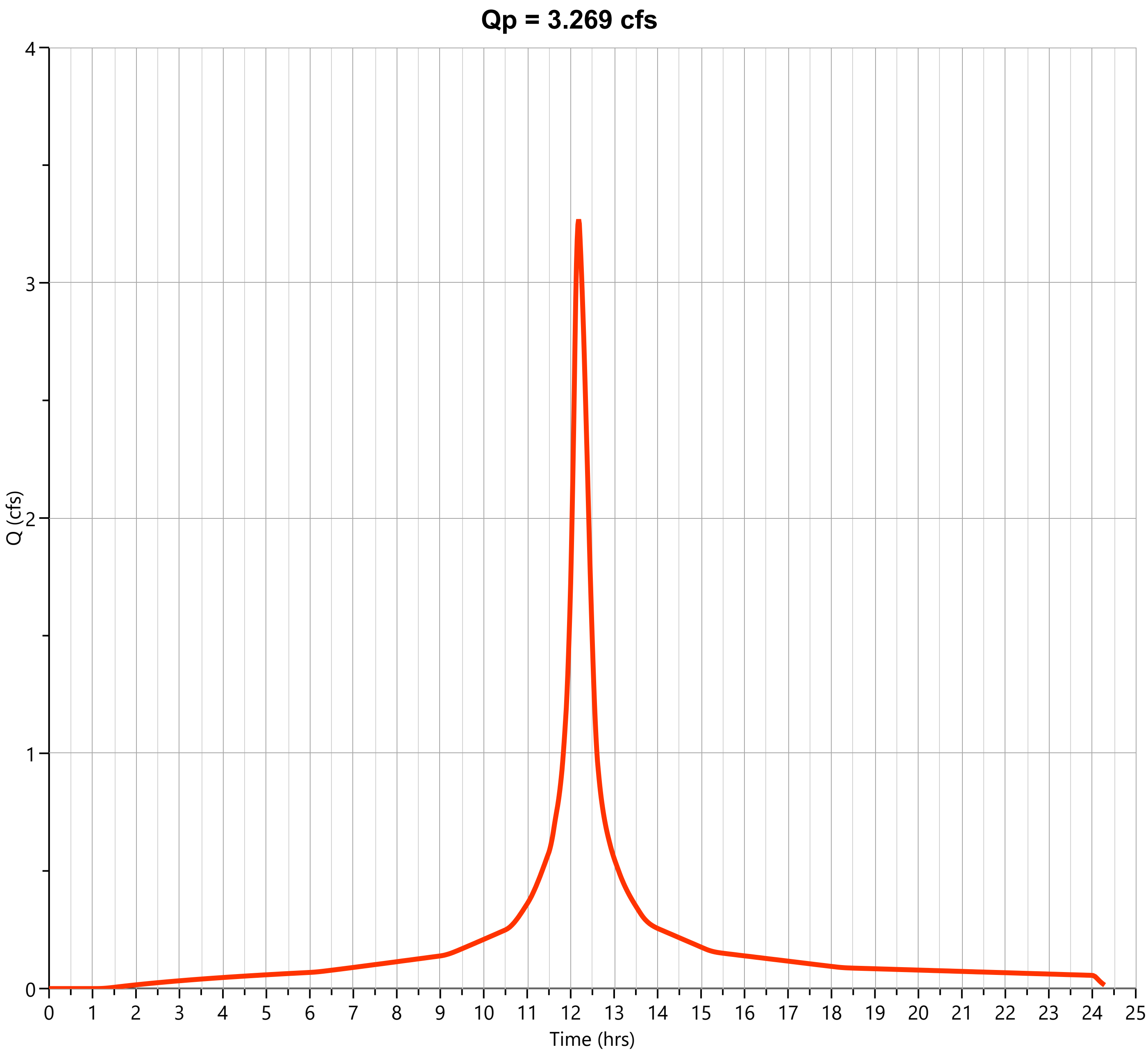
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.603 cfs
Storm Frequency	= 2-yr	Time to Peak	= 13.13 hrs
Time Interval	= 1 min	Runoff Volume	= 9,669 cuft
Drainage Area	= 9.02 ac	Curve Number	= 55.00
Tc Method	= User	Time of Conc. (Tc)	= 35.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2C (UNDET) IMP

Hyd. No. 20

Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.269 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 16,958 cuft
Drainage Area	= 1.49 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 3.35 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284

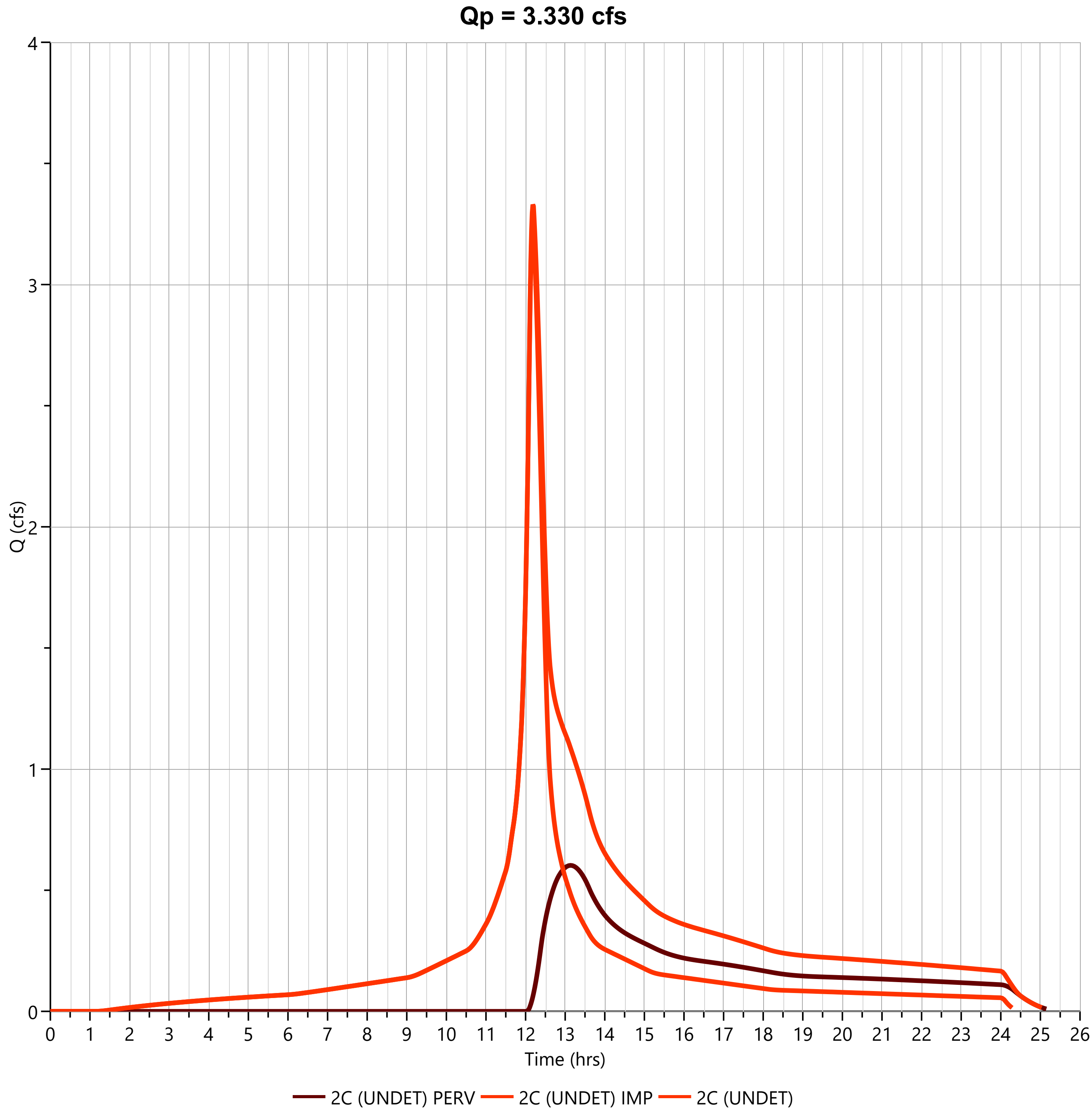


Hydrograph Report

2C (UNDET)

Hyd. No. 21

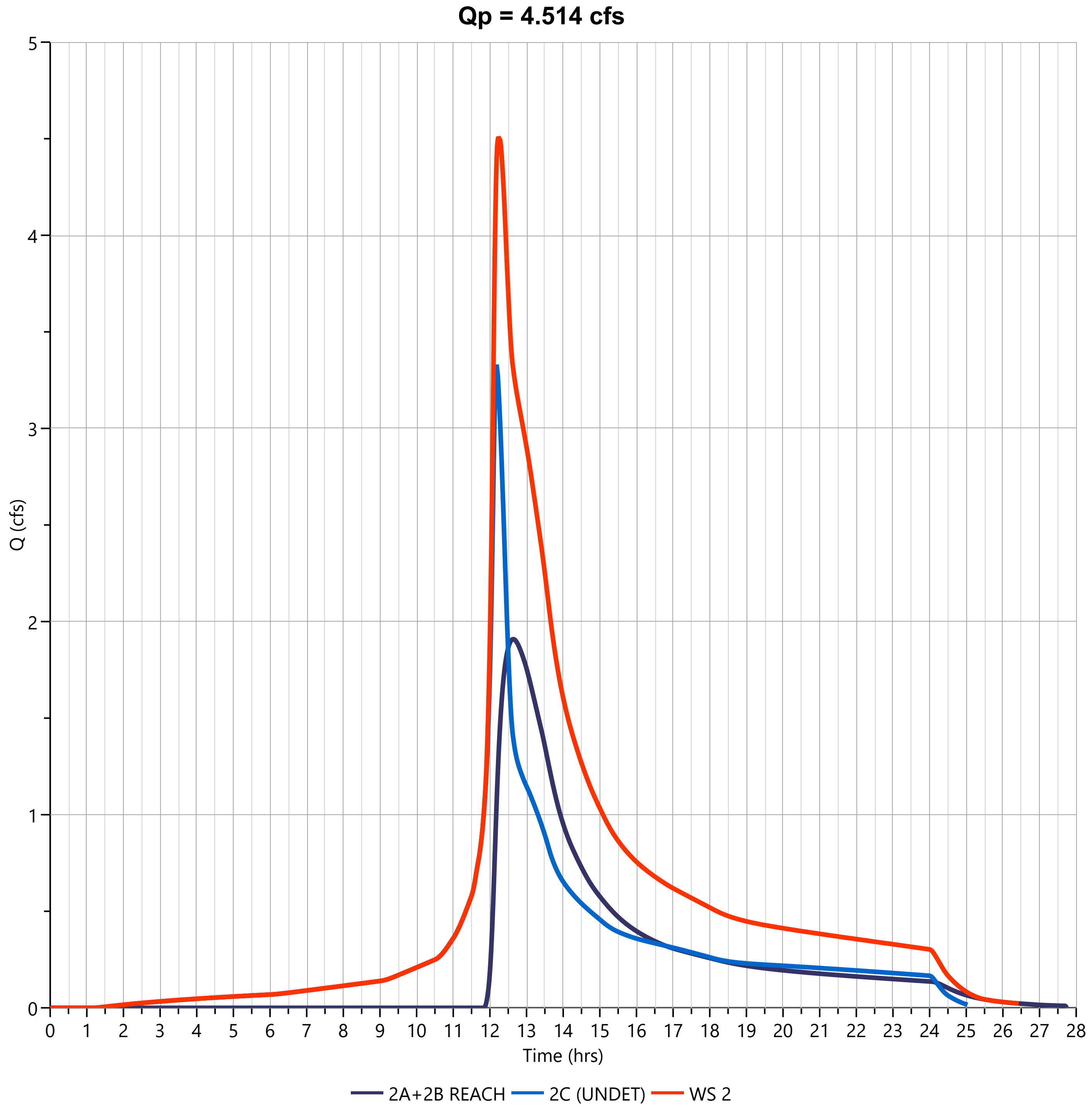
Hydrograph Type	= Junction	Peak Flow	= 3.330 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Hydrograph Volume	= 26,628 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 10.51 ac



WS 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 4.514 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.25 hrs
Time Interval	= 1 min	Hydrograph Volume	= 48,282 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



Hydrograph 10-yr Summary

Hydrology Studio v 3.0.0.44

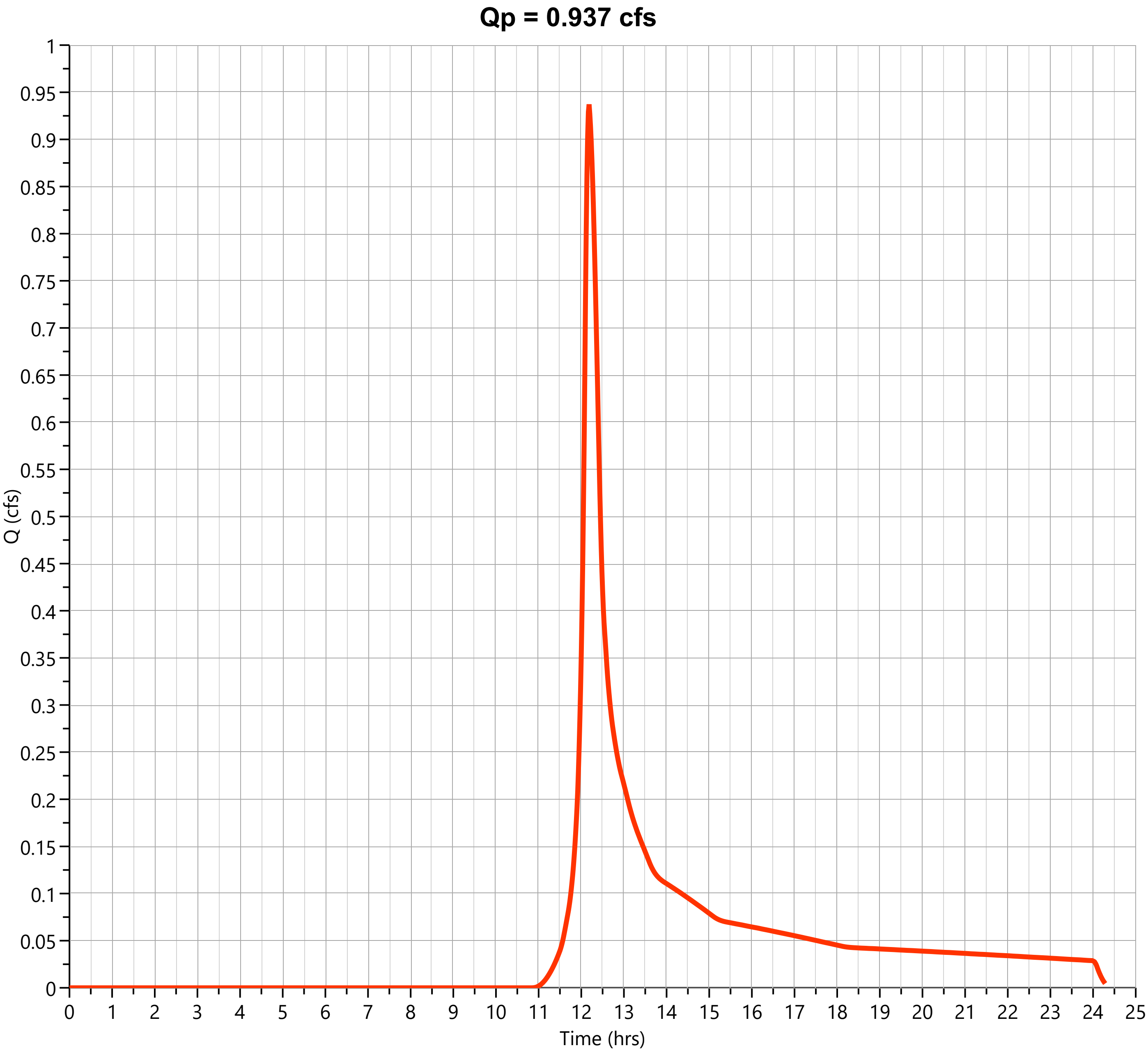
File: 102054601 - Proposed.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	1A (DET) PERV	0.937	12.18	4,358	----		
2	NRCS Runoff	1A (DET) IMP	5.872	12.10	20,198	----		
3	Junction	1A (DET)	6.607	12.10	24,556	1, 2		
4	Pond Route	1A ROUTED	2.720	12.25	20,266	3	103.87	8,784
5	NRCS Runoff	1B (UNDET) PERV	1.119	12.47	10,290	----		
6	NRCS Runoff	1B (UNDET) IMP	0.470	12.13	1,966	----		
7	Junction	1B (UNDET)	1.239	12.43	12,256	5, 6		
8	Junction	WS 1	3.944	12.27	32,522	4, 7		
9	NRCS Runoff	2A (DET) PERV	1.413	12.18	6,660	----		
10	NRCS Runoff	2A (DET) IMP	6.236	12.10	21,449	----		
11	Junction	2A (DET)	7.335	12.10	28,110	9, 10		
12	Pond Route	2A ROUTED	2.102	12.40	23,612	11	104.77	10,834
13	NRCS Runoff	2B (DET) PERV	0.963	12.10	2,905	----		
14	NRCS Runoff	2B (DET) IMP	6.703	12.10	23,058	----		
15	Junction	2B (DET)	7.666	12.10	25,963	13, 14		
16	Pond Route	2B ROUTED	1.234	12.55	21,106	15	103.78	13,193
17	Junction	2A+2B	3.328	12.43	44,718	12, 16		
18	Reach	2A+2B REACH	3.306	12.57	44,658	17		
19	NRCS Runoff	2C (UNDET) PERV	3.391	12.72	35,408	----		
20	NRCS Runoff	2C (UNDET) IMP	5.122	12.18	27,055	----		
21	Junction	2C (UNDET)	6.623	12.25	62,464	19, 20		
22	Junction	WS 2	9.642	12.30	107,122	18, 21		

1A (DET) PERV

Hyd. No. 1

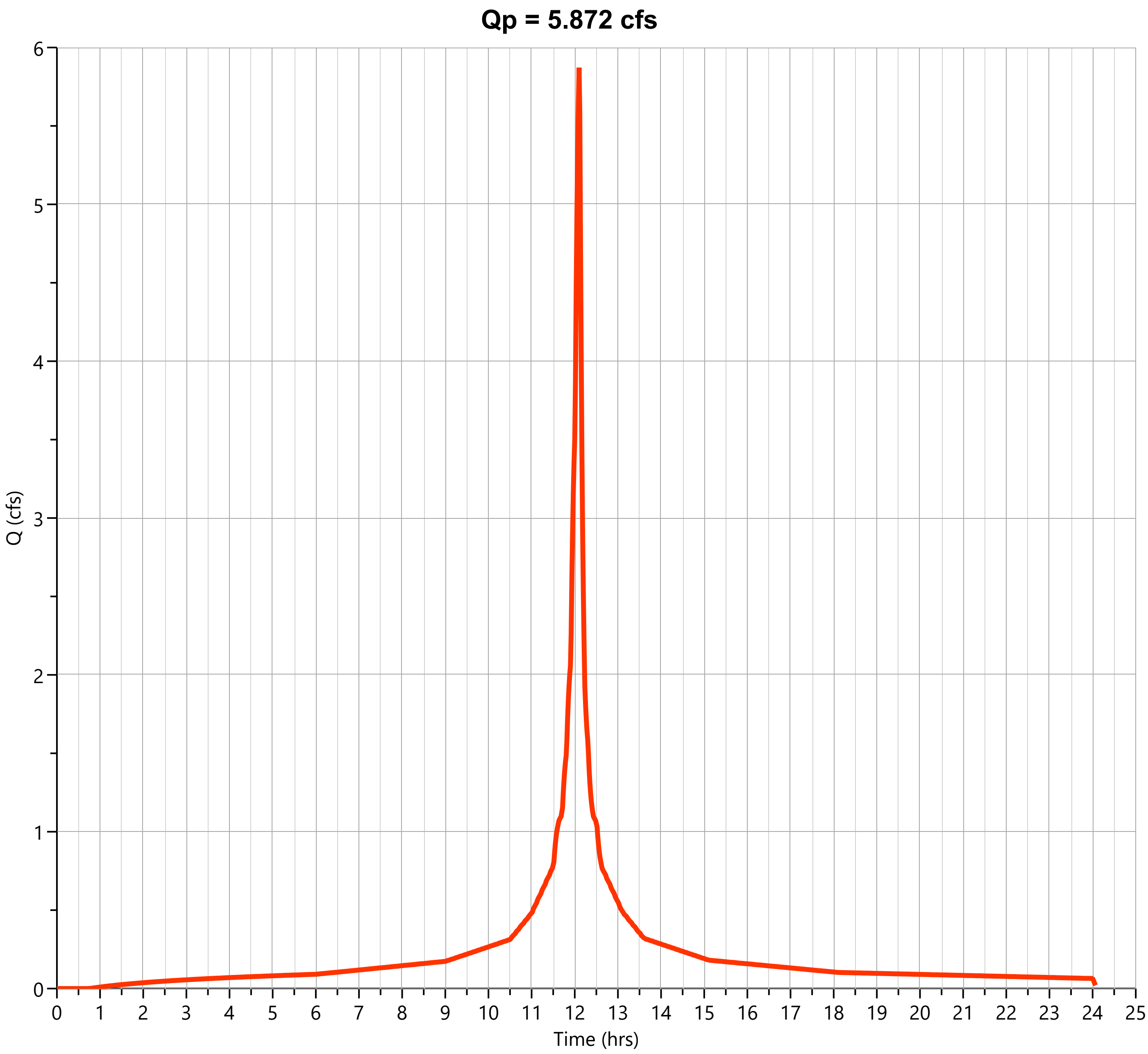
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.937 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 4,358 cuft
Drainage Area	= 0.81 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 9.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1A (DET) IMP

Hyd. No. 2

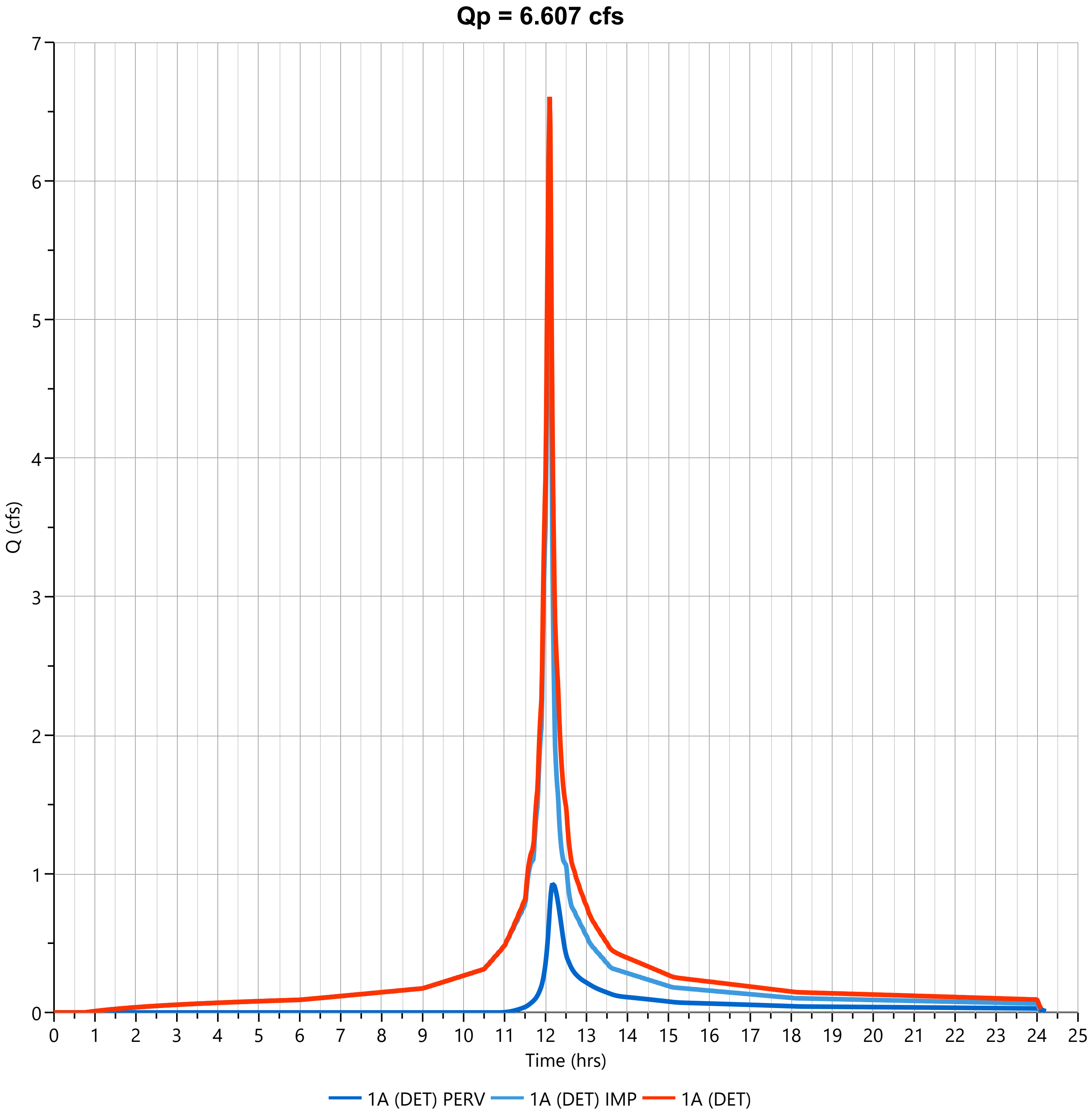
Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.872 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 20,198 cuft
Drainage Area	= 1.13 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1A (DET)

Hyd. No. 3

Hydrograph Type	= Junction	Peak Flow	= 6.607 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 24,556 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.94 ac



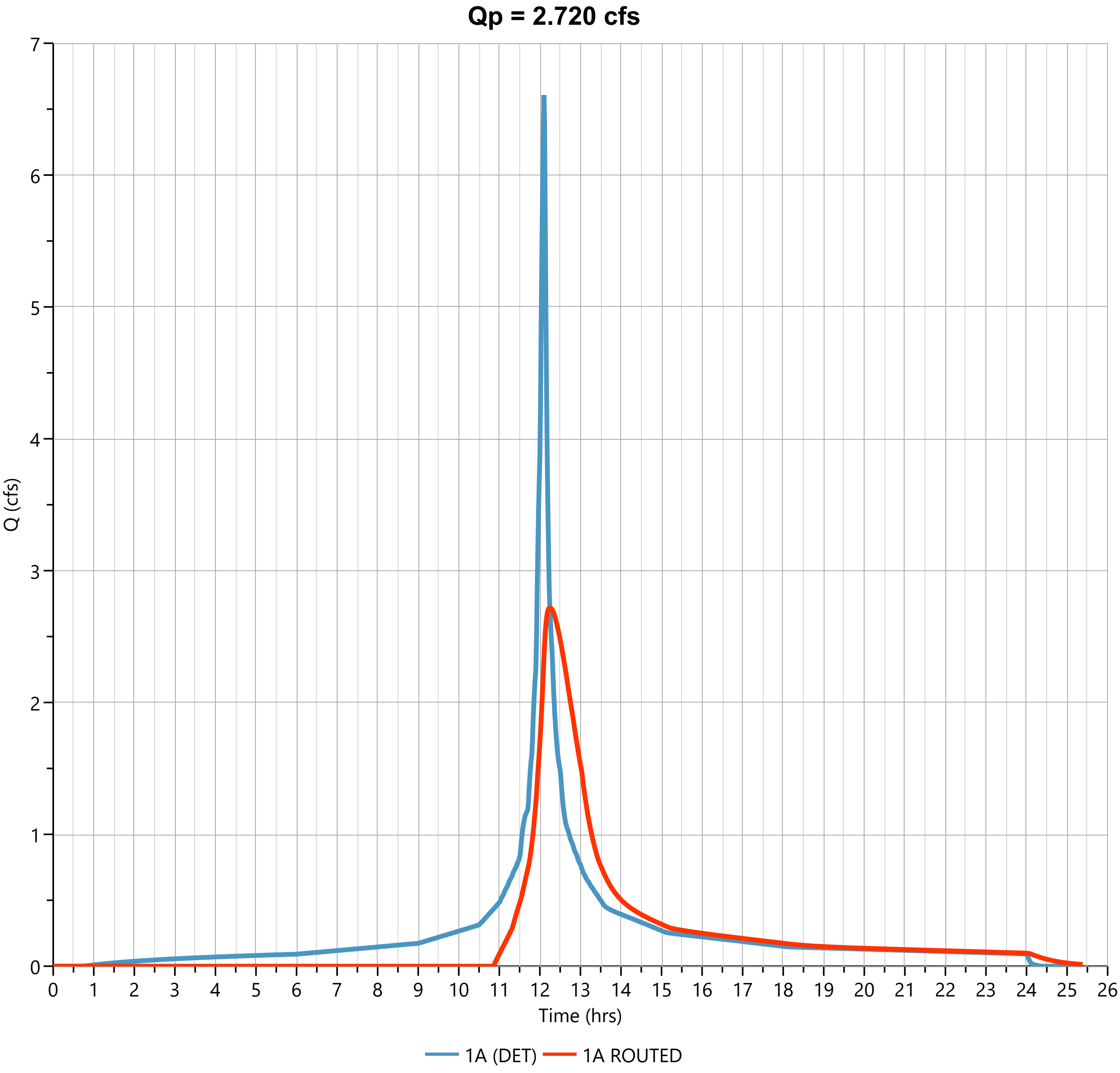
1A ROUTED

Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 2.720 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.25 hrs
Time Interval	= 1 min	Hydrograph Volume	= 20,266 cuft
Inflow Hydrograph	= 3 - 1A (DET)	Max. Elevation	= 103.87 ft
Pond Name	= Basin 2	Max. Storage	= 8,784 cuft

Pond Routing by Storage Indication Method

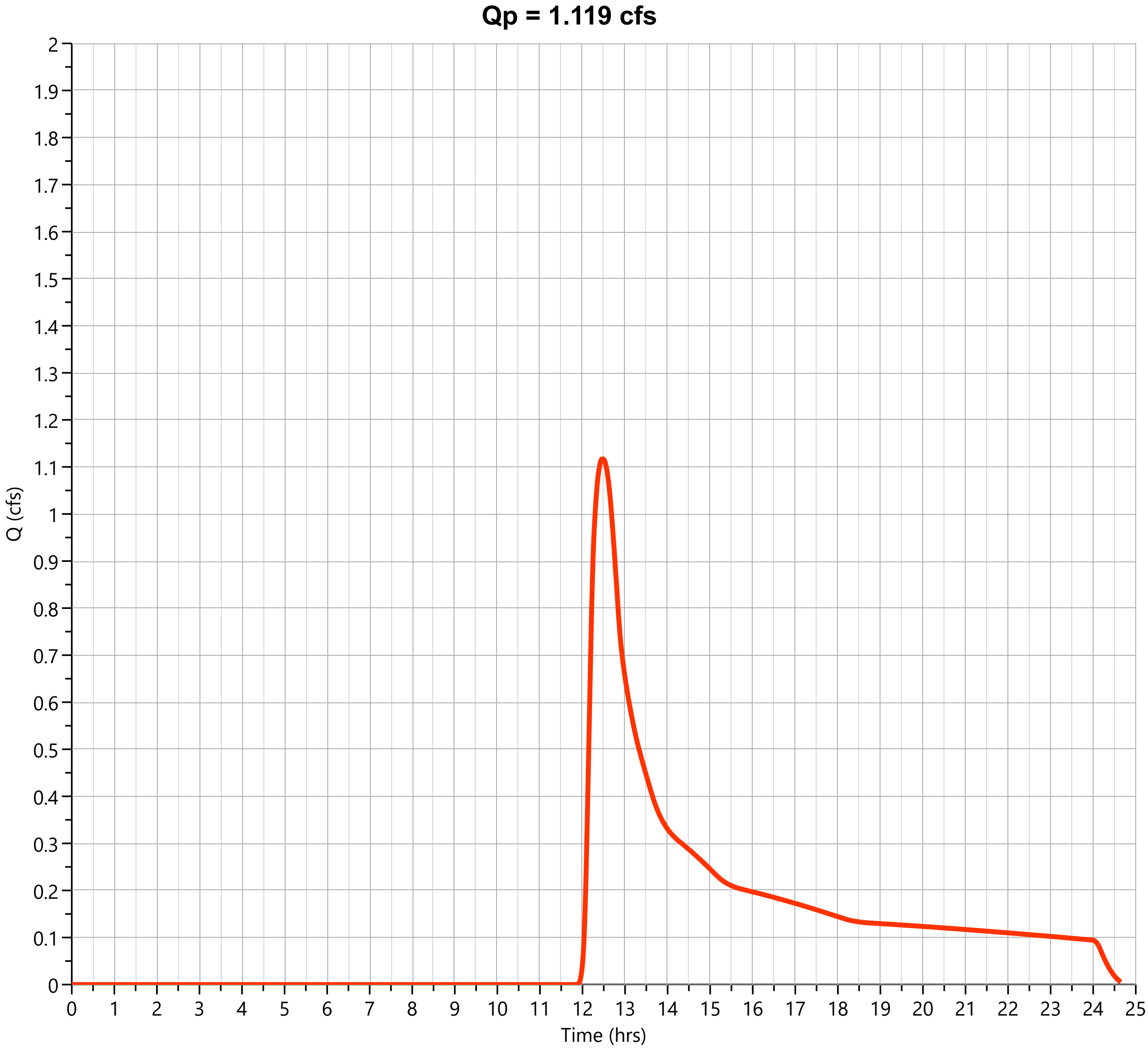
Center of mass detention time = 1.56 hrs



1B (UNDET) PERV

Hyd. No. 5

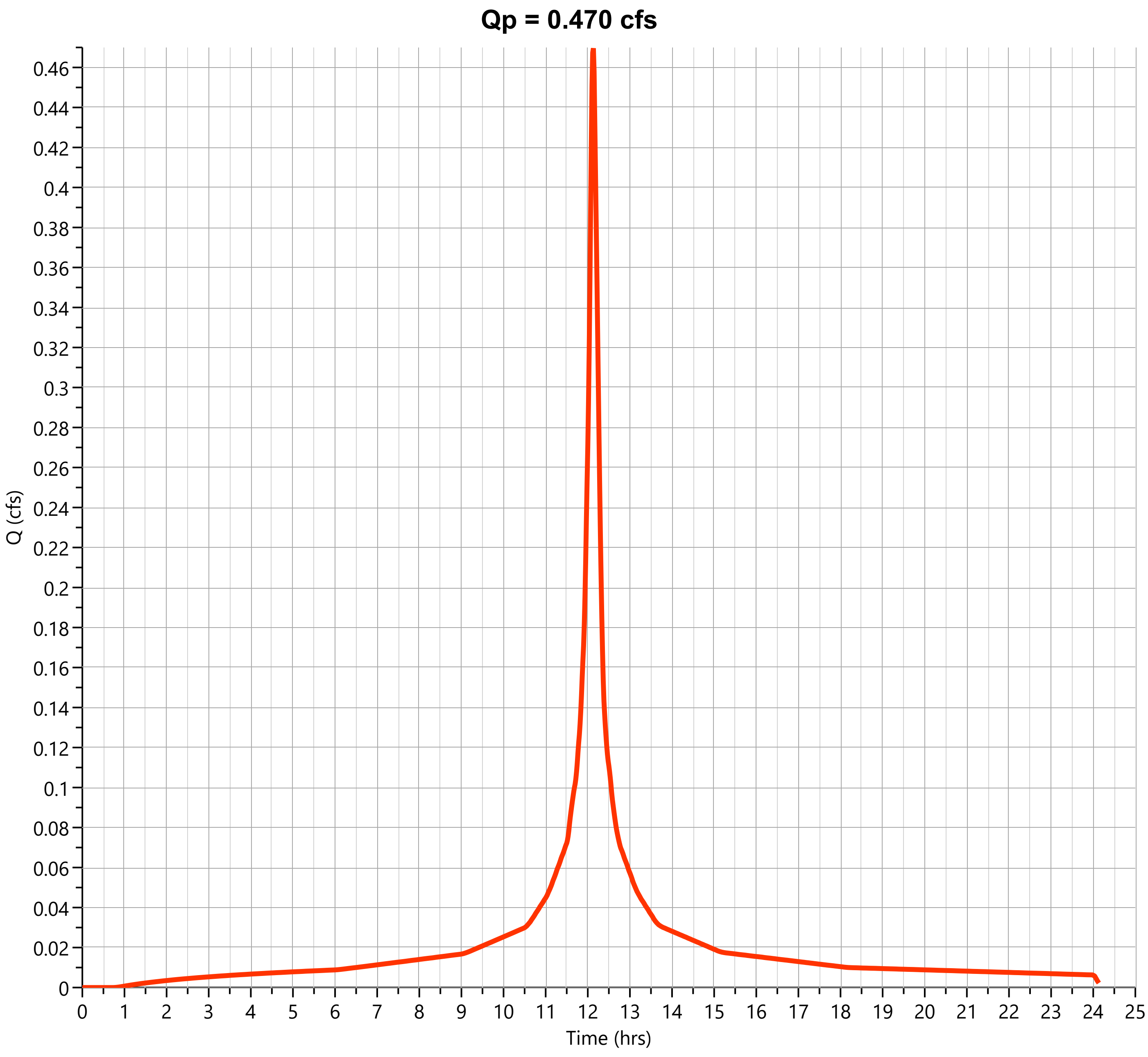
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.119 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.47 hrs
Time Interval	= 1 min	Runoff Volume	= 10,290 cuft
Drainage Area	= 3.92 ac	Curve Number	= 49.00
Tc Method	= User	Time of Conc. (Tc)	= 18.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1B (UNDET) IMP

Hyd. No. 6

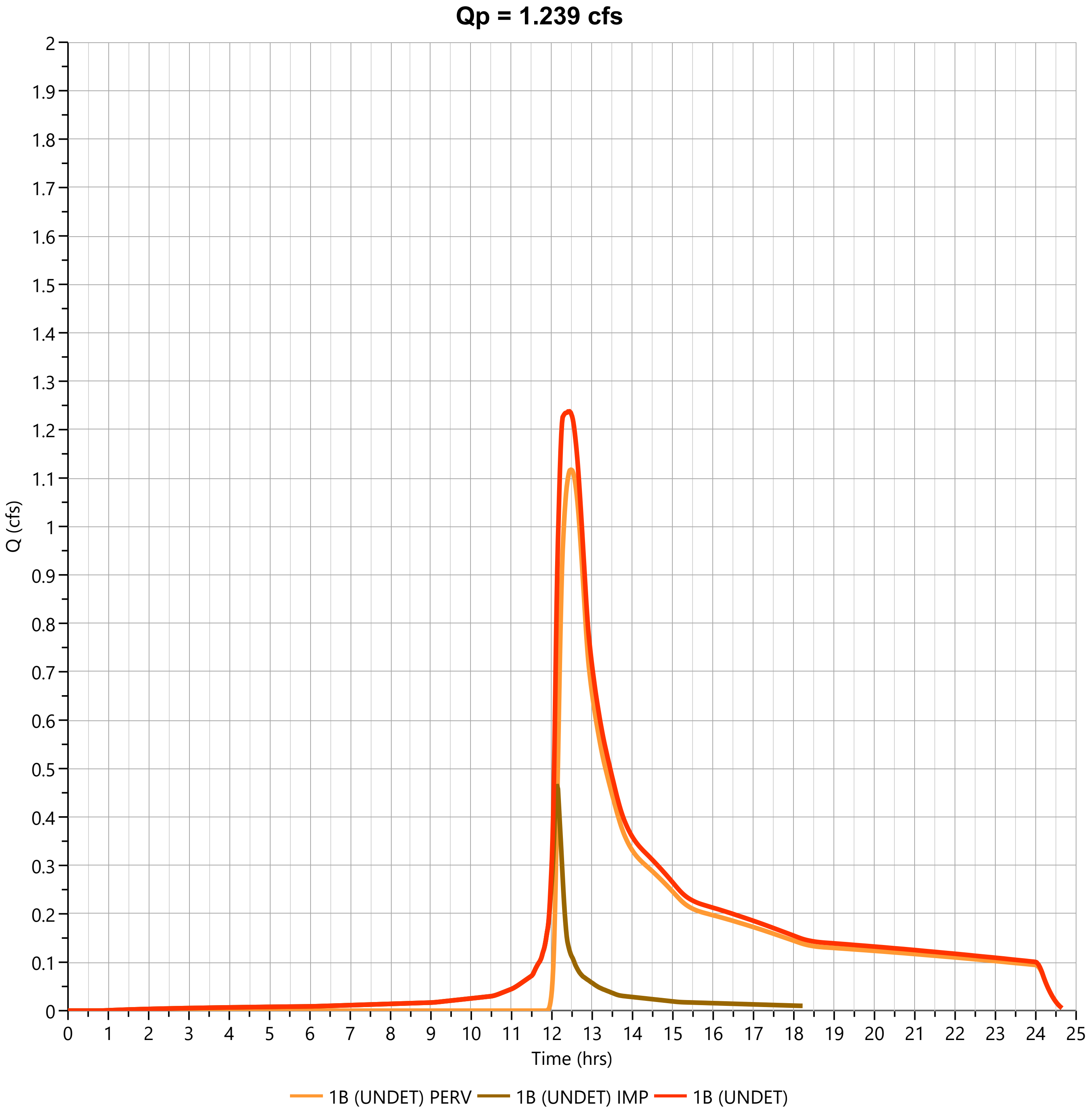
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.470 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Runoff Volume	= 1,966 cuft
Drainage Area	= 0.11 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1B (UNDET)

Hyd. No. 7

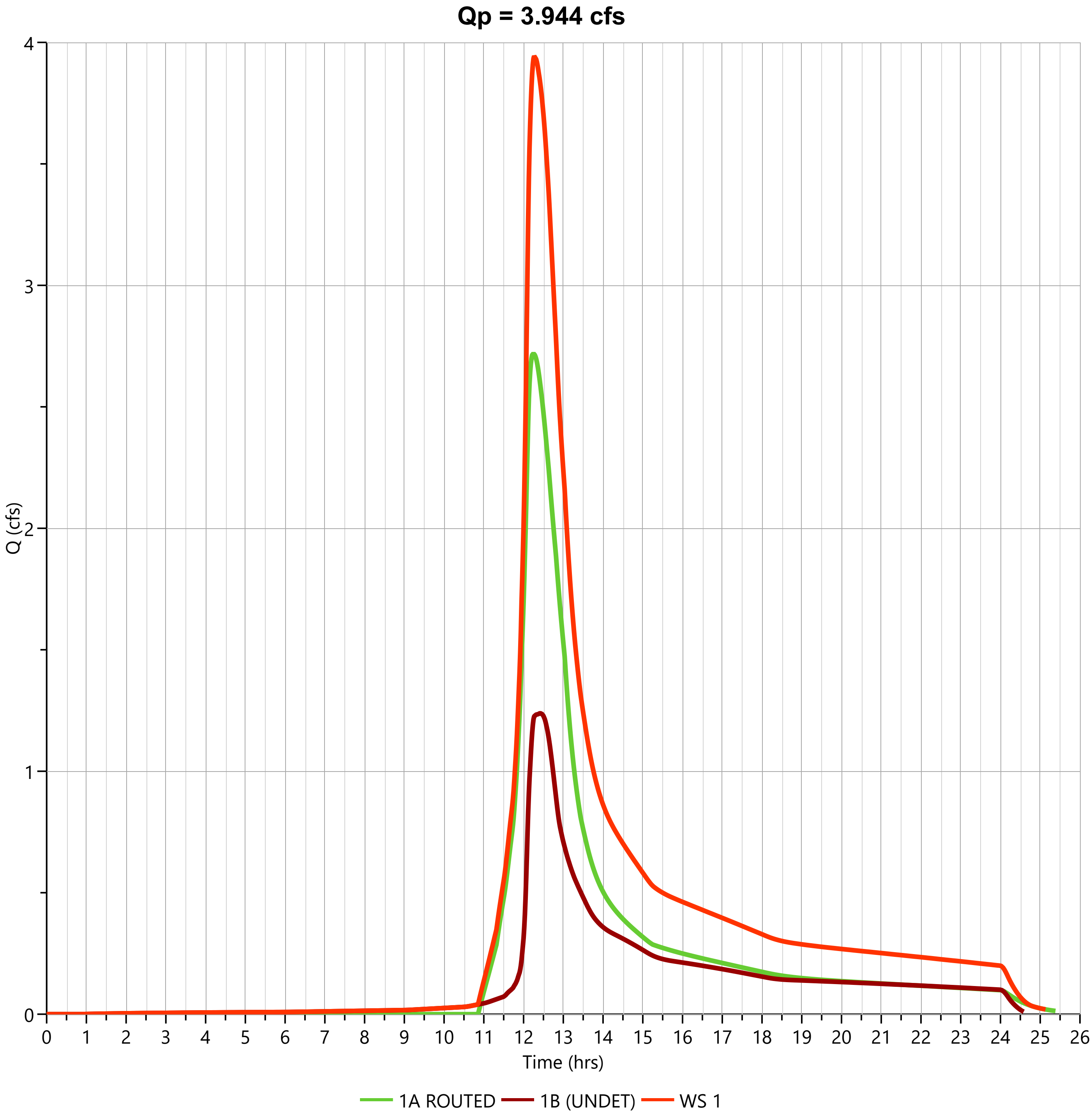
Hydrograph Type	= Junction	Peak Flow	= 1.239 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.43 hrs
Time Interval	= 1 min	Hydrograph Volume	= 12,256 cuft
Inflow Hydrographs	= 5, 6	Total Contrib. Area	= 4.03 ac



WS 1

Hyd. No. 8

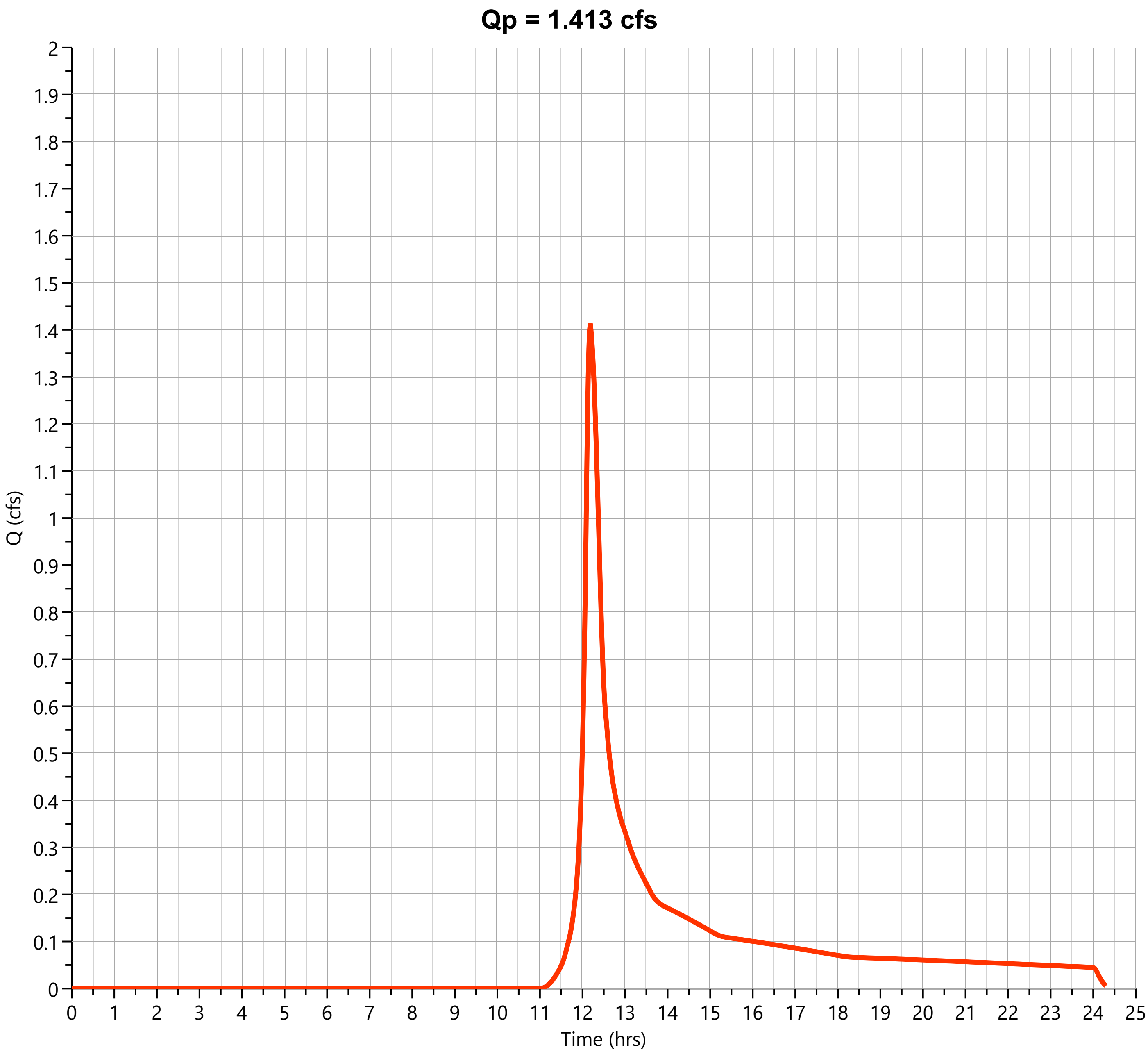
Hydrograph Type	= Junction	Peak Flow	= 3.944 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.27 hrs
Time Interval	= 1 min	Hydrograph Volume	= 32,522 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



2A (DET) PERV

Hyd. No. 9

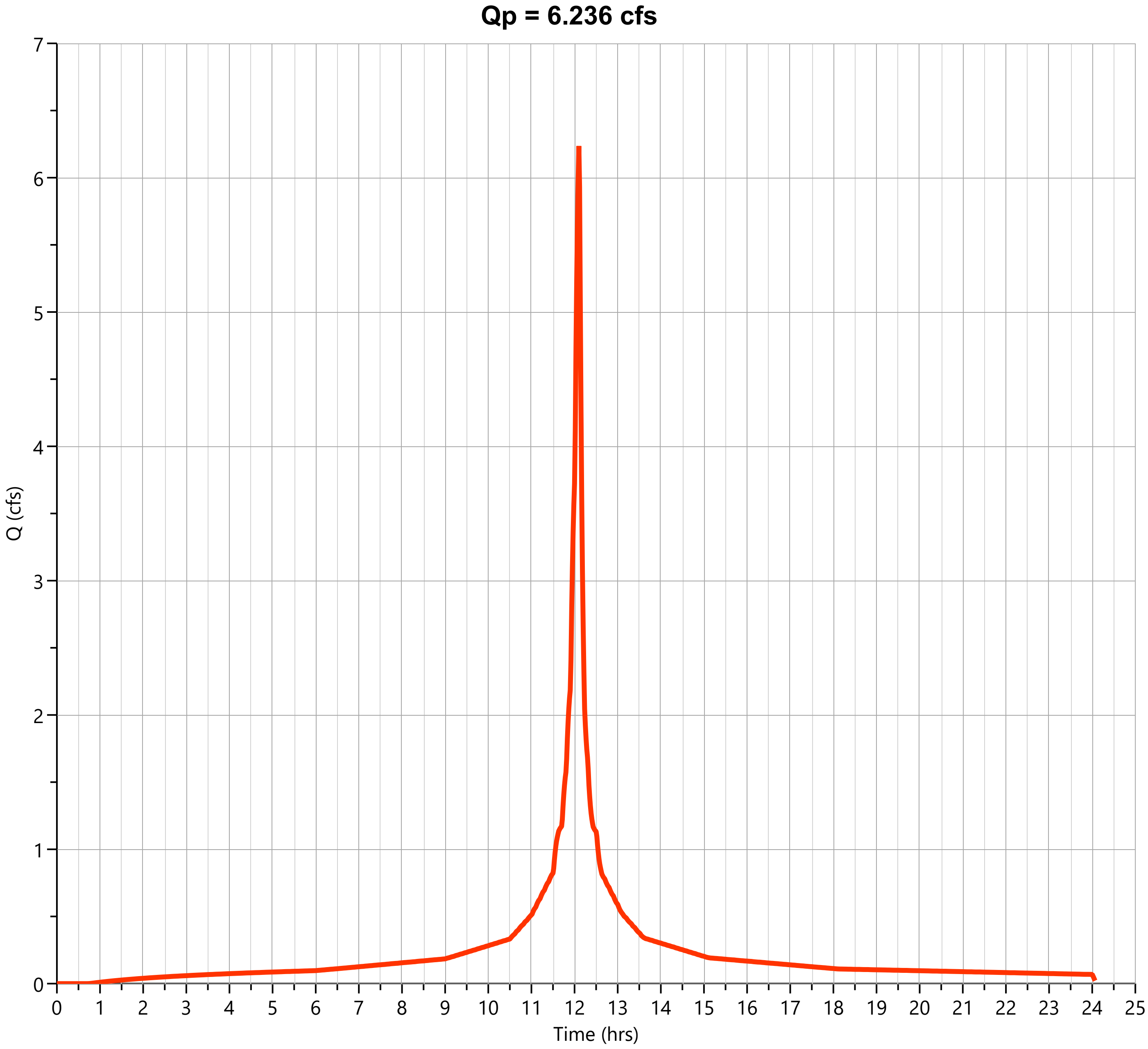
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.413 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 6,660 cuft
Drainage Area	= 1.3 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2A (DET) IMP

Hyd. No. 10

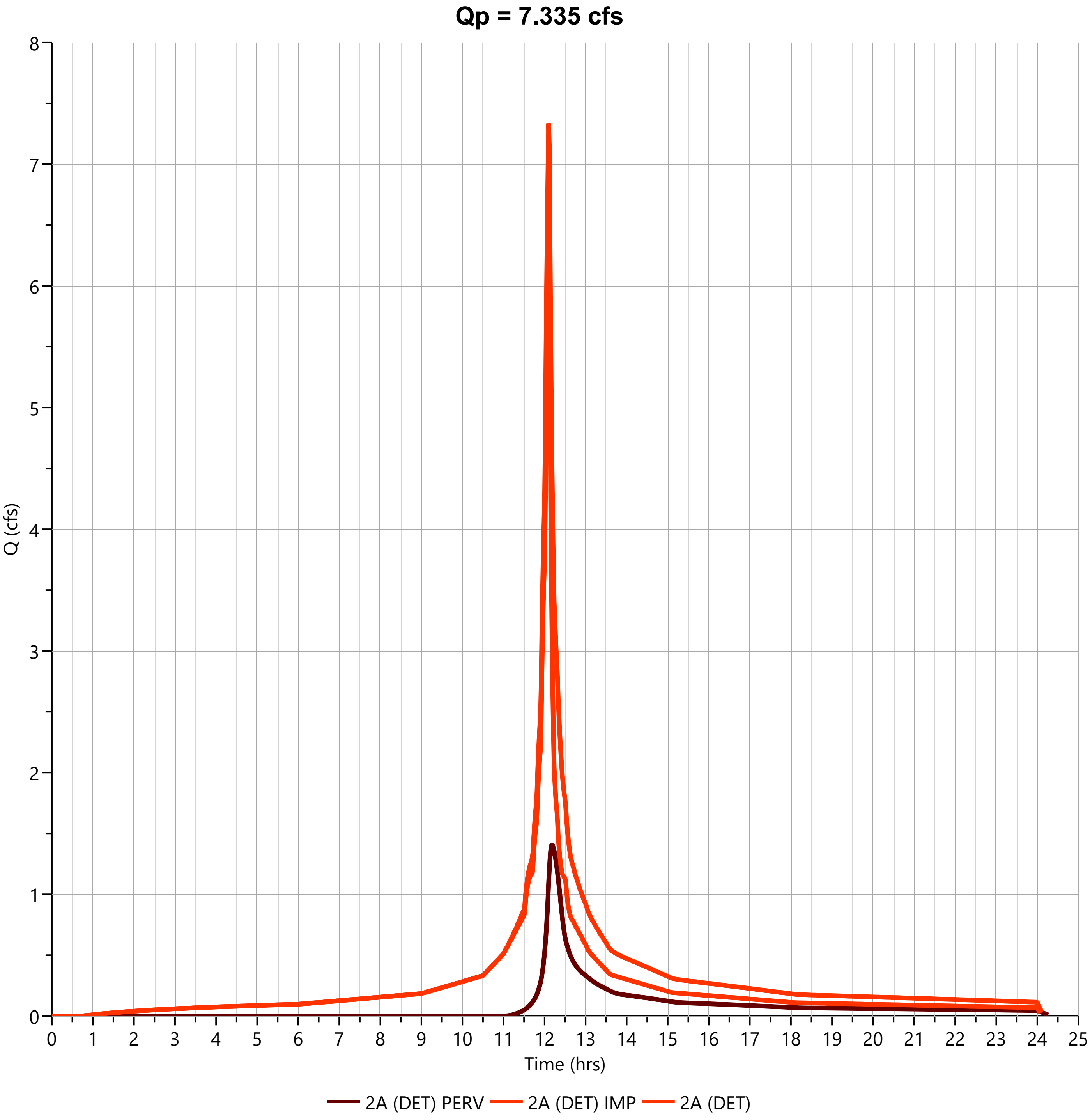
Hydrograph Type	= NRCS Runoff	Peak Flow	= 6.236 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 21,449 cuft
Drainage Area	= 1.2 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2A (DET)

Hyd. No. 11

Hydrograph Type	= Junction	Peak Flow	= 7.335 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 28,110 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 2.5 ac



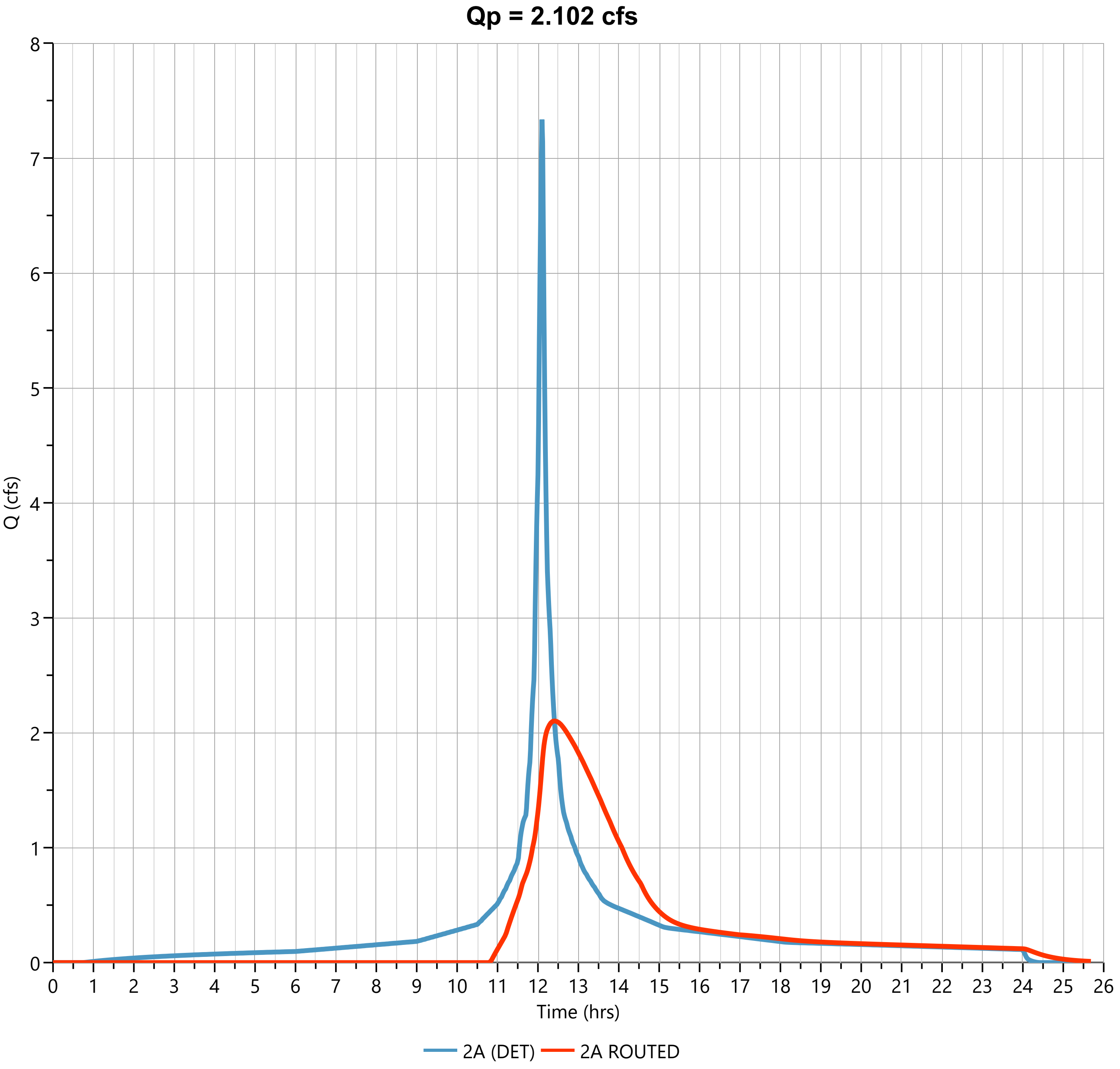
2A ROUTED

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 2.102 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.40 hrs
Time Interval	= 1 min	Hydrograph Volume	= 23,612 cuft
Inflow Hydrograph	= 11 - 2A (DET)	Max. Elevation	= 104.77 ft
Pond Name	= Basin 1	Max. Storage	= 10,834 cuft

Pond Routing by Storage Indication Method

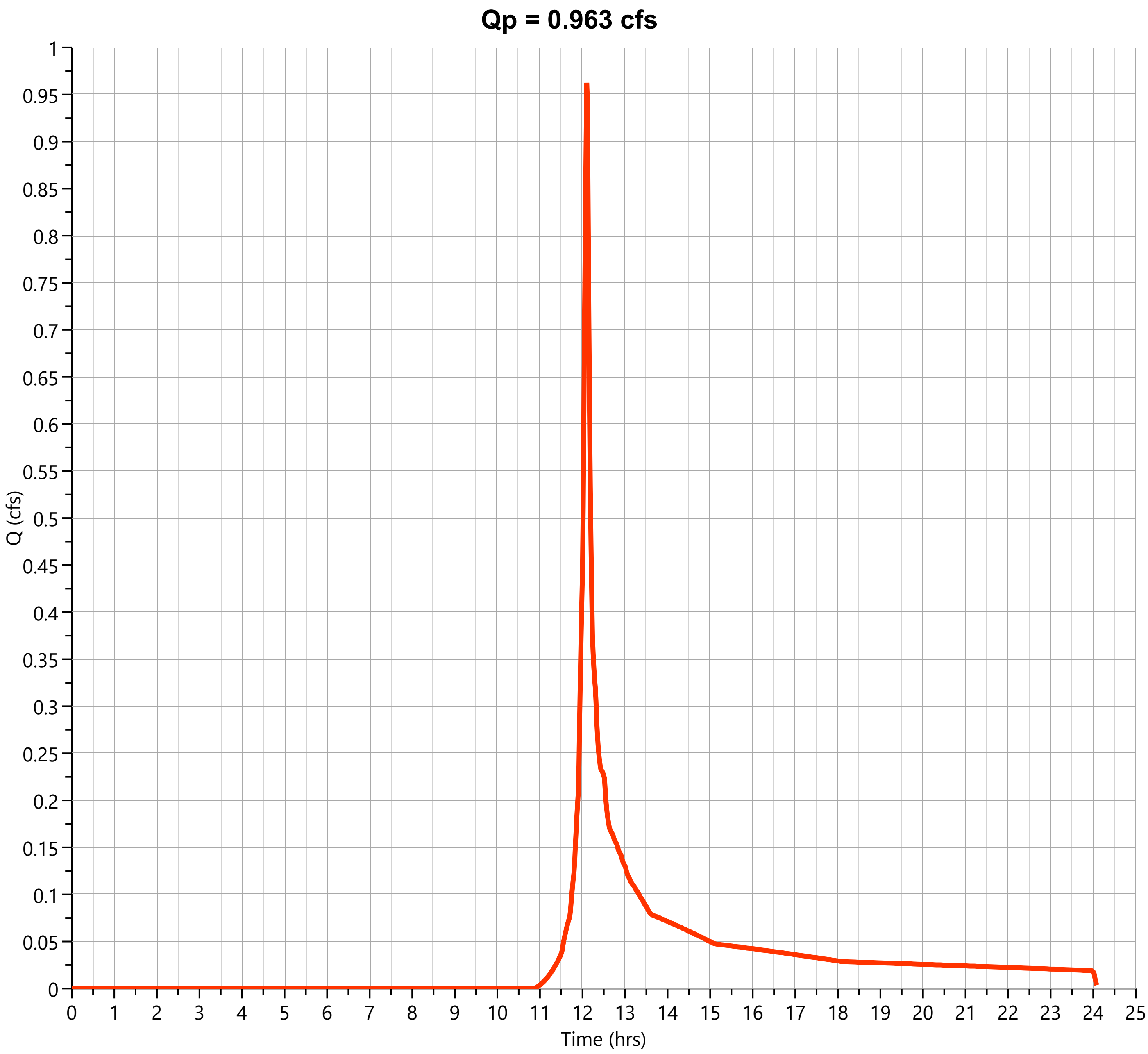
Center of mass detention time = 1.65 hrs



2B (DET) PERV

Hyd. No. 13

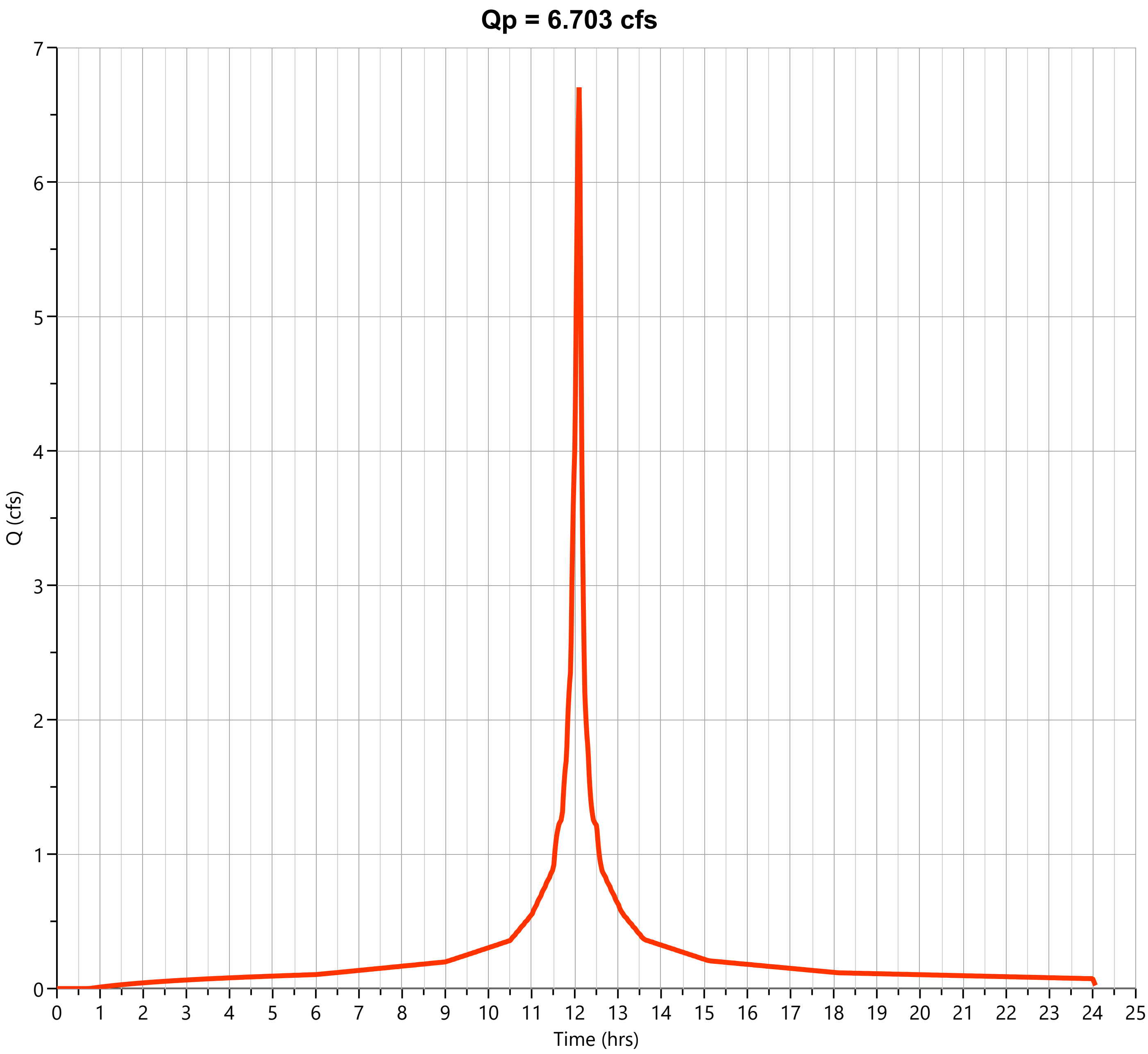
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.963 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 2,905 cuft
Drainage Area	= 0.54 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 2.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2B (DET) IMP

Hyd. No. 14

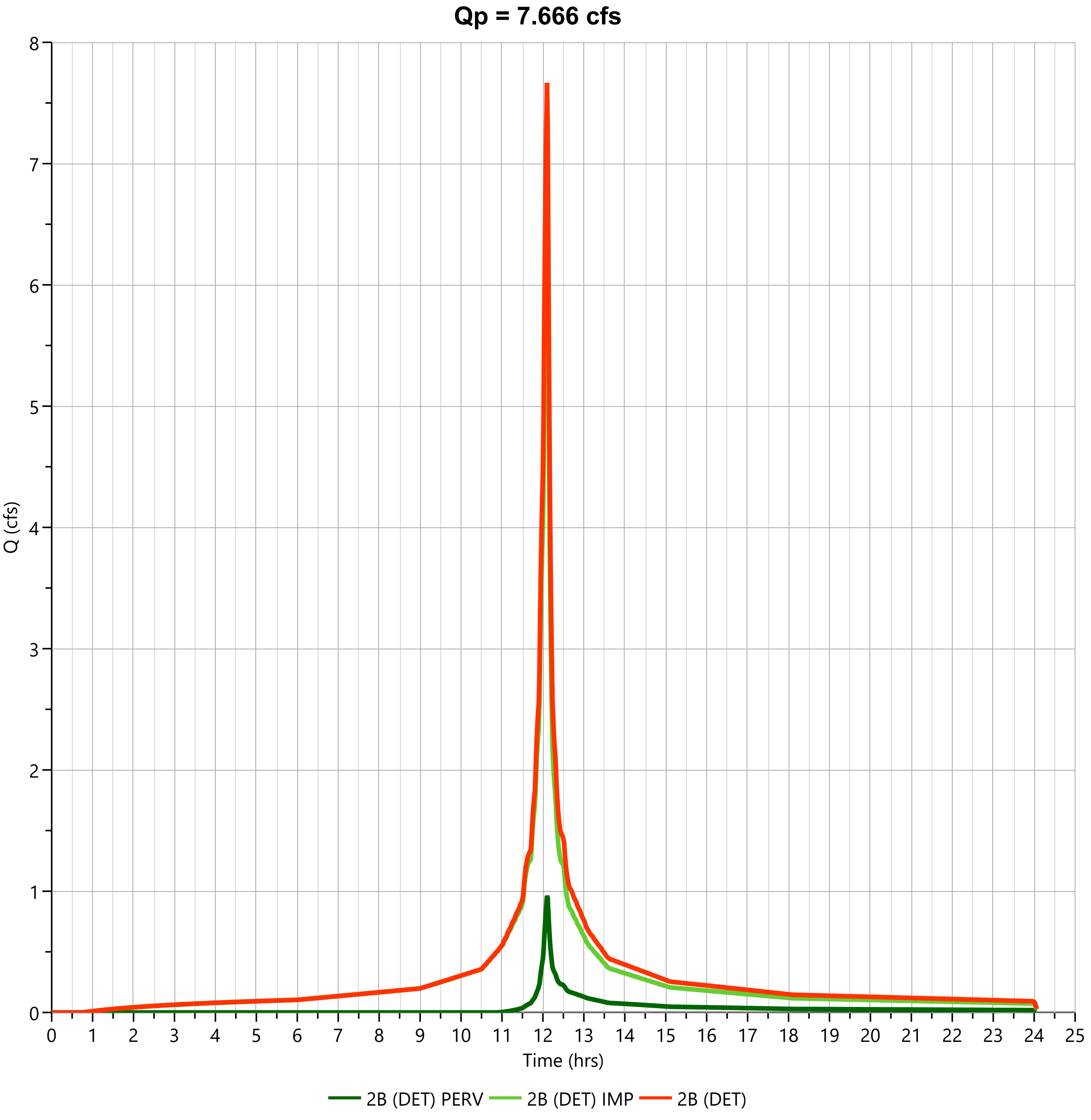
Hydrograph Type	= NRCS Runoff	Peak Flow	= 6.703 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 23,058 cuft
Drainage Area	= 1.29 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2B (DET)

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 7.666 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 25,963 cuft
Inflow Hydrographs	= 13, 14	Total Contrib. Area	= 1.83 ac



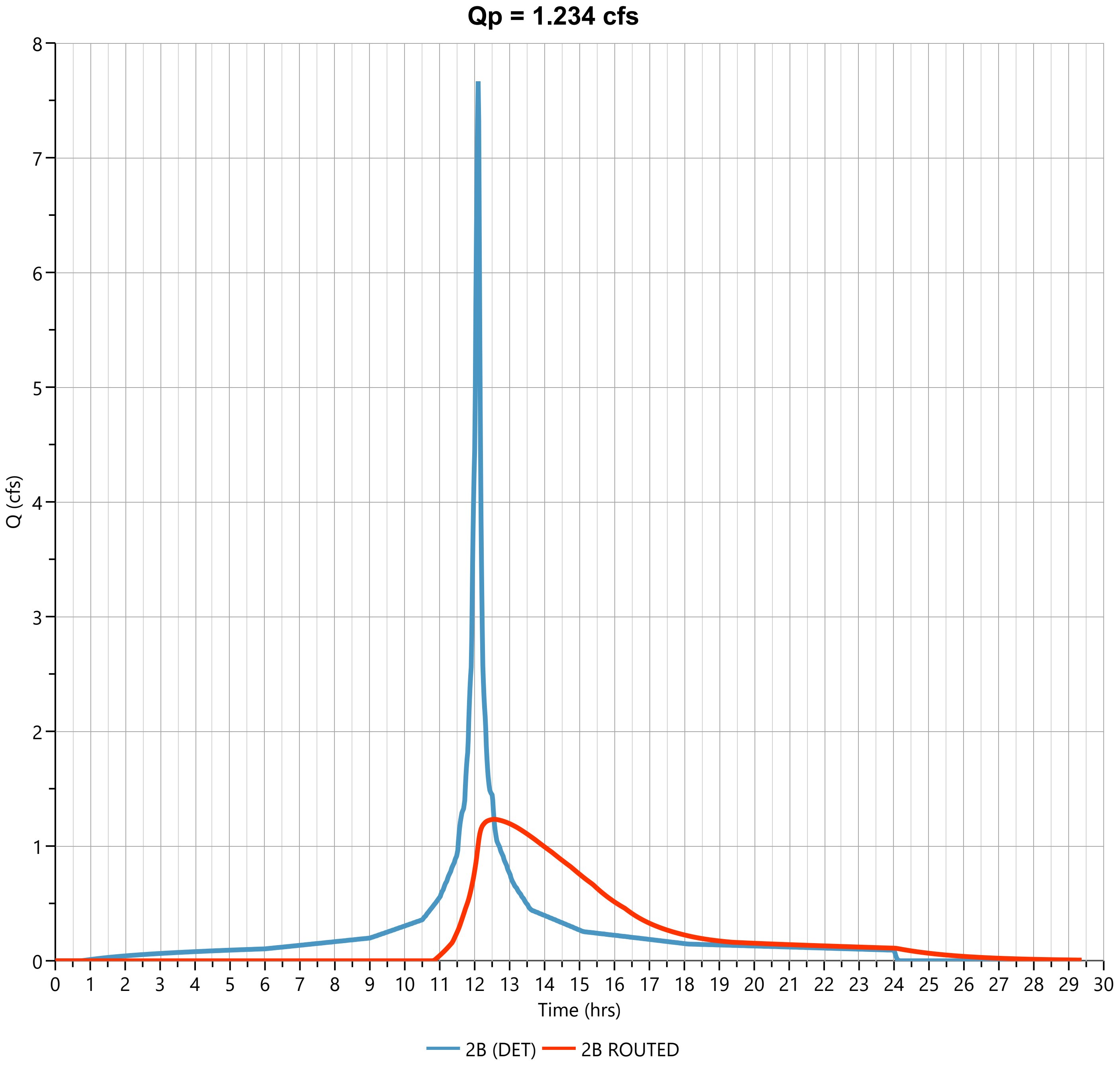
2B ROUTED

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 1.234 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.55 hrs
Time Interval	= 1 min	Hydrograph Volume	= 21,106 cuft
Inflow Hydrograph	= 15 - 2B (DET)	Max. Elevation	= 103.78 ft
Pond Name	= Basin 3	Max. Storage	= 13,193 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.73 hrs

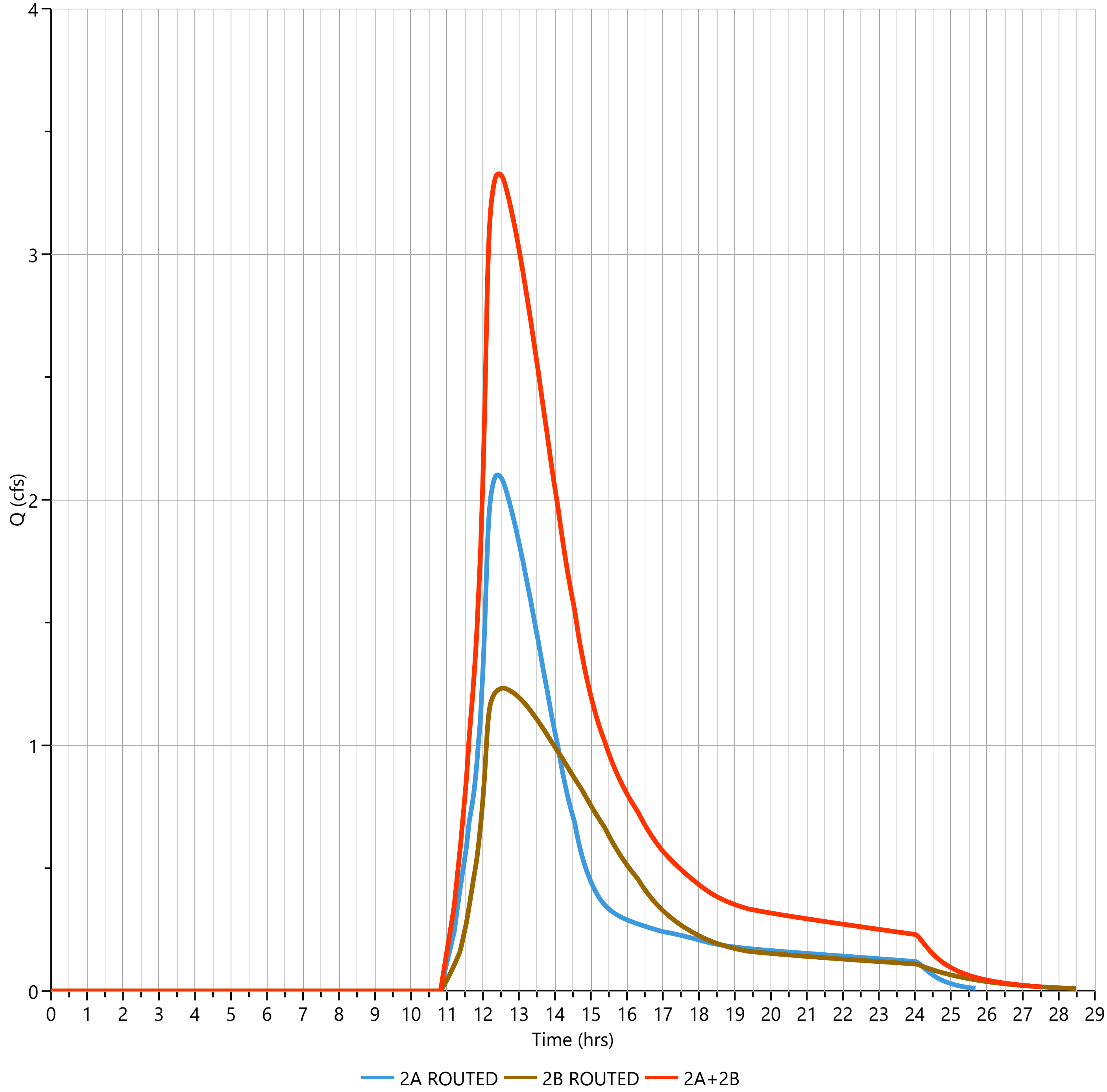


2A+2B

Hyd. No. 17

Hydrograph Type	= Junction	Peak Flow	= 3.328 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.43 hrs
Time Interval	= 1 min	Hydrograph Volume	= 44,718 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac

Qp = 3.328 cfs

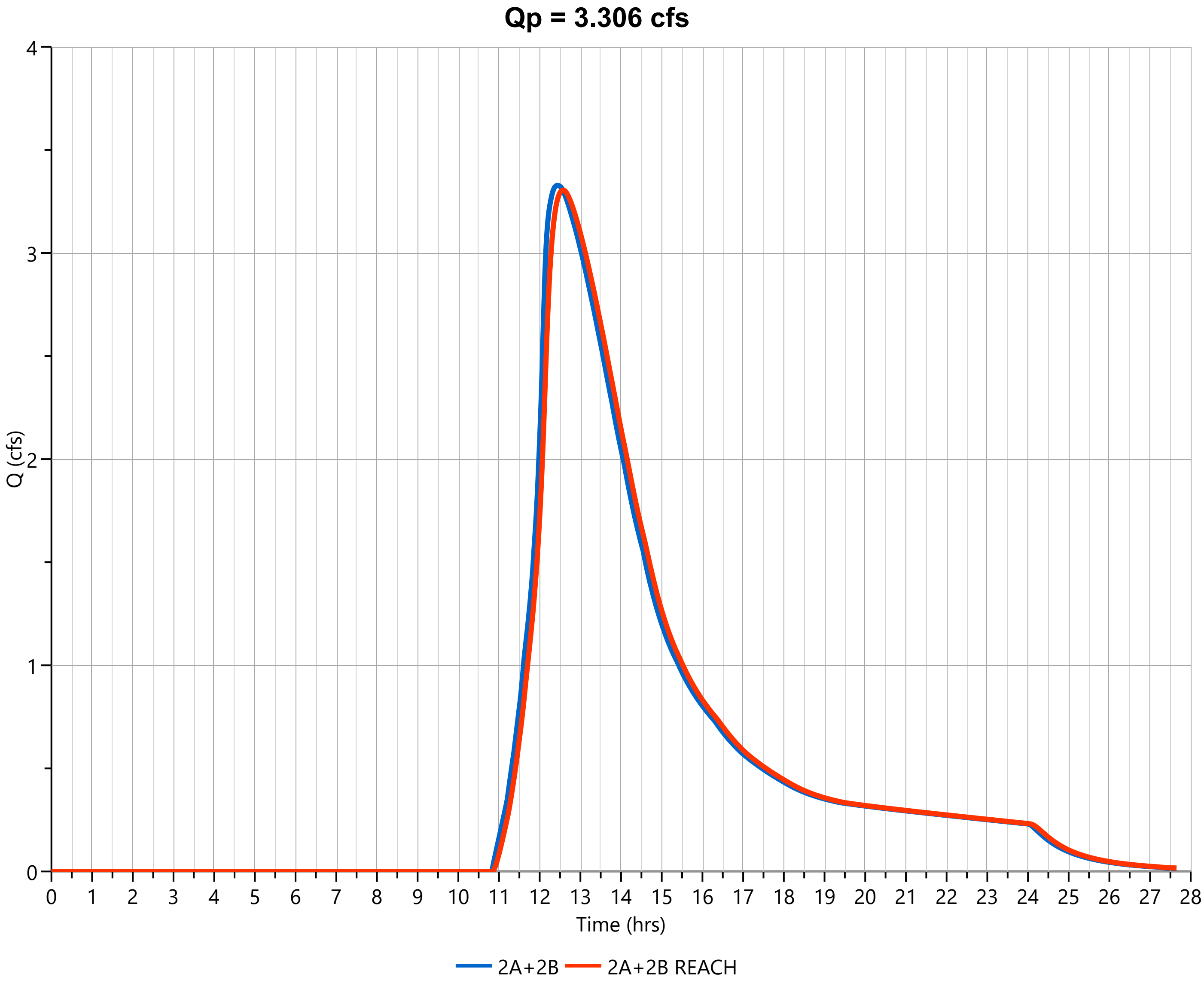


2A+2B REACH

Hyd. No. 18

Hydrograph Type	= Reach	Peak Flow	= 3.306 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.57 hrs
Time Interval	= 1 min	Hydrograph Volume	= 44,658 cuft
Inflow Hydrograph	= 17 - 2A+2B	Section Type	= Circular
Reach Length	= 435 ft	Channel Slope	= 0.50 %
Manning's n	= 0.012	Pipe Diameter	= 2.00 ft
Side Slope (h:v)	= n/a	Maximum Depth	= n/a
Rating Curve X	= 5.318	Average Velocity	= 1.06 ft/s
Rating Curve m	= 1.250	Routing Coeff.	= 0.1674

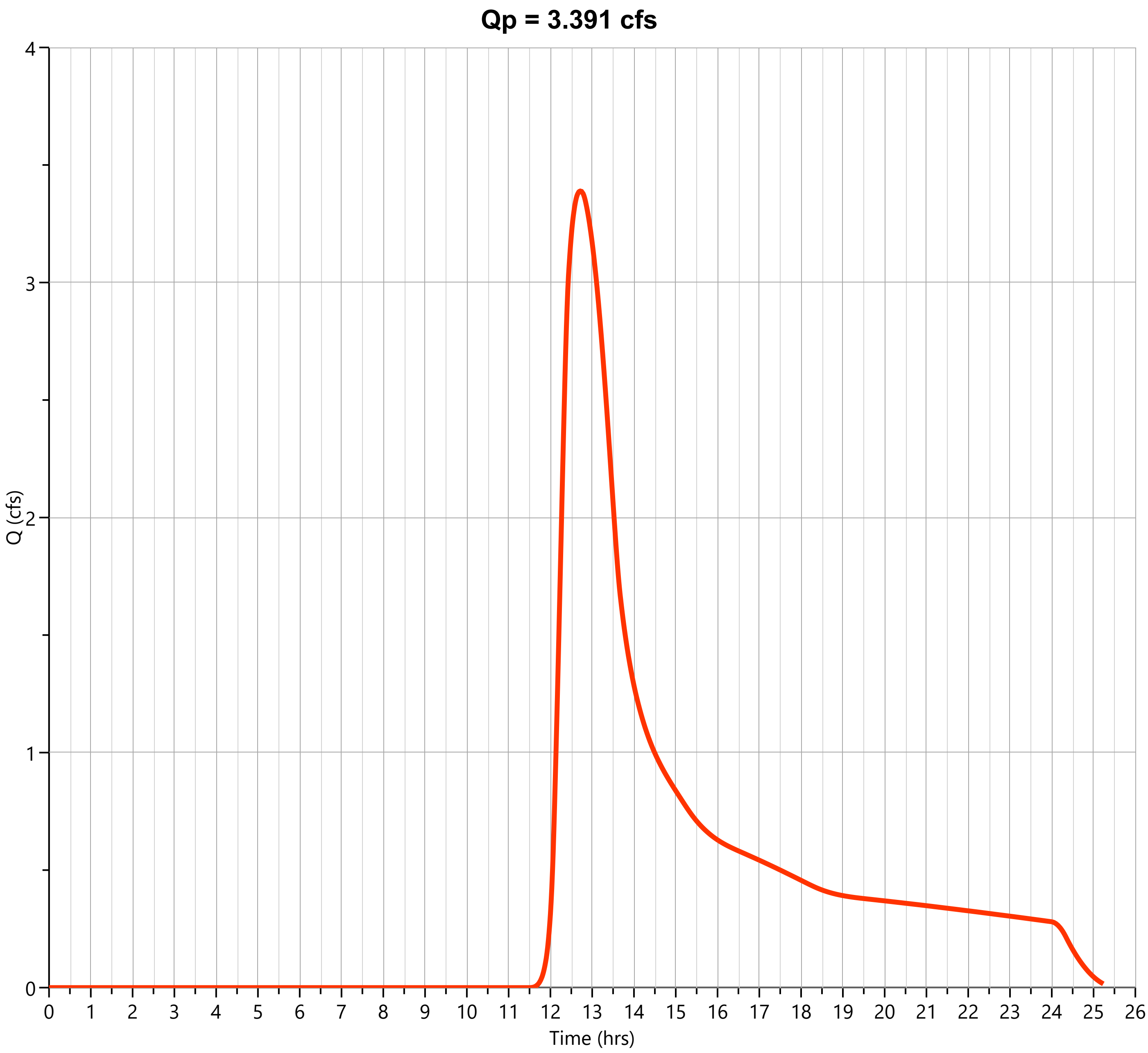
Modified Att-Kin routing method



2C (UNDET) PERV

Hyd. No. 19

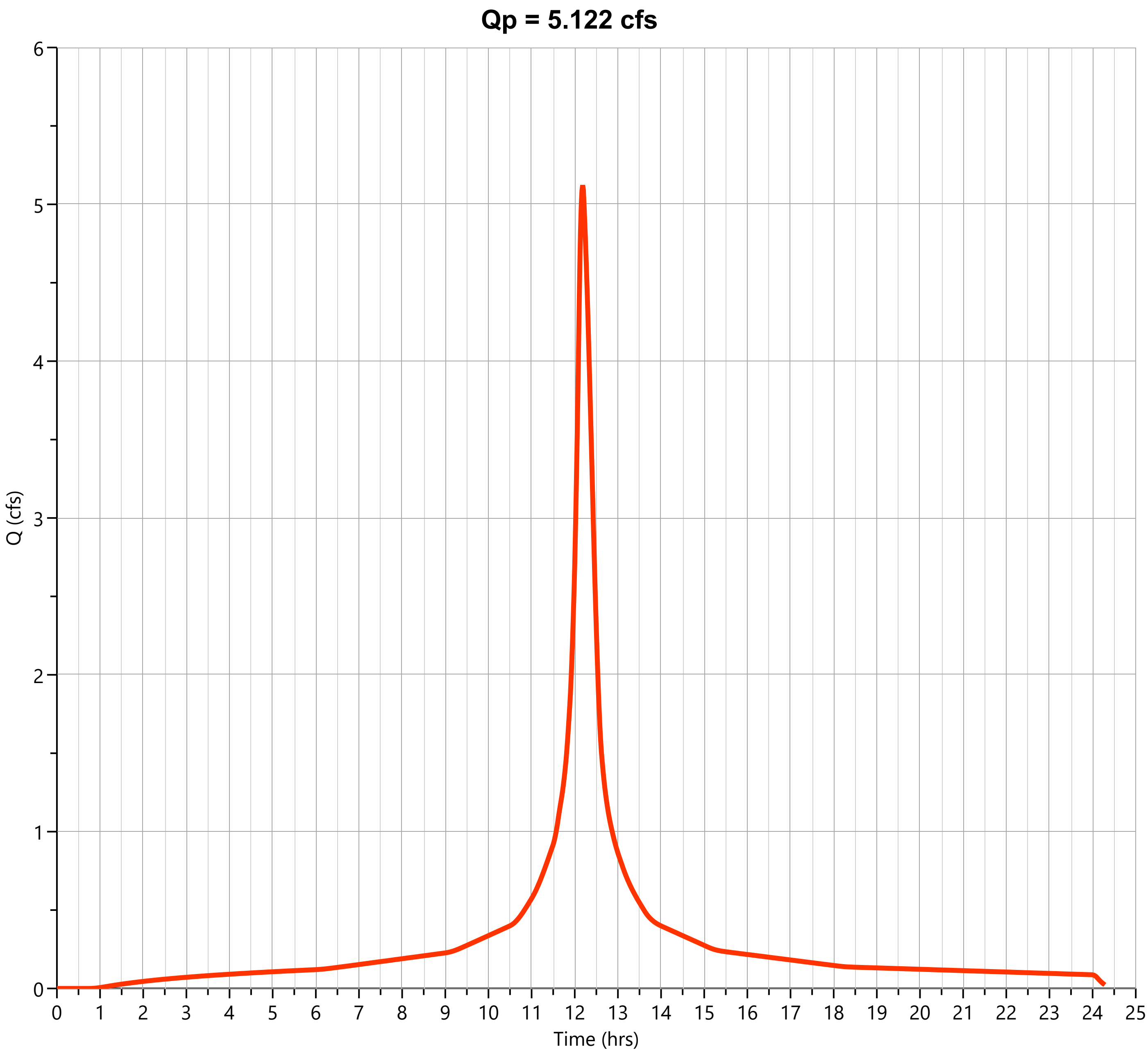
Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.391 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.72 hrs
Time Interval	= 1 min	Runoff Volume	= 35,408 cuft
Drainage Area	= 9.02 ac	Curve Number	= 55.00
Tc Method	= User	Time of Conc. (Tc)	= 35.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2C (UNDET) IMP

Hyd. No. 20

Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.122 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 27,055 cuft
Drainage Area	= 1.49 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 5.21 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284

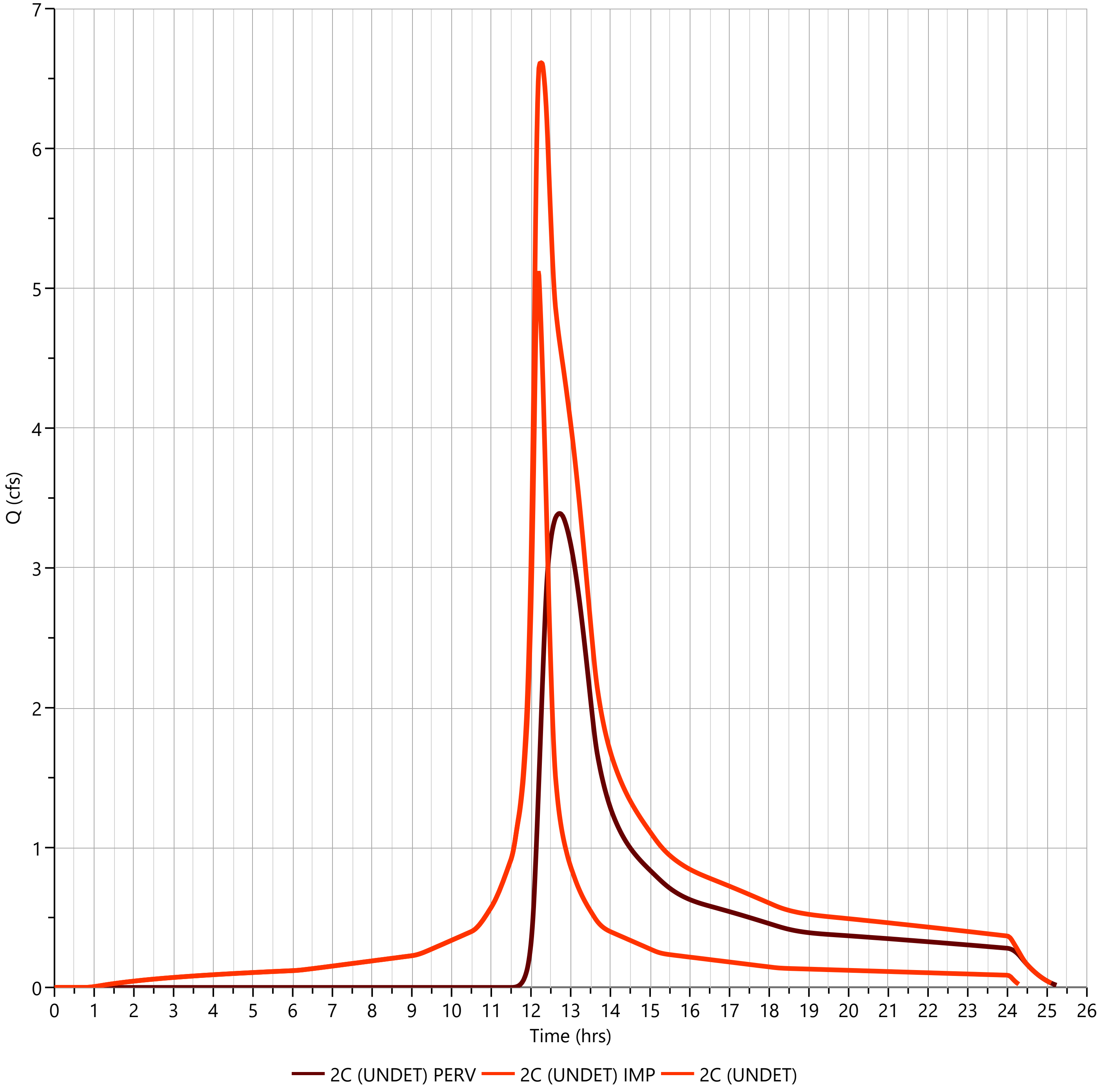


2C (UNDET)

Hyd. No. 21

Hydrograph Type	= Junction	Peak Flow	= 6.623 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.25 hrs
Time Interval	= 1 min	Hydrograph Volume	= 62,464 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 10.51 ac

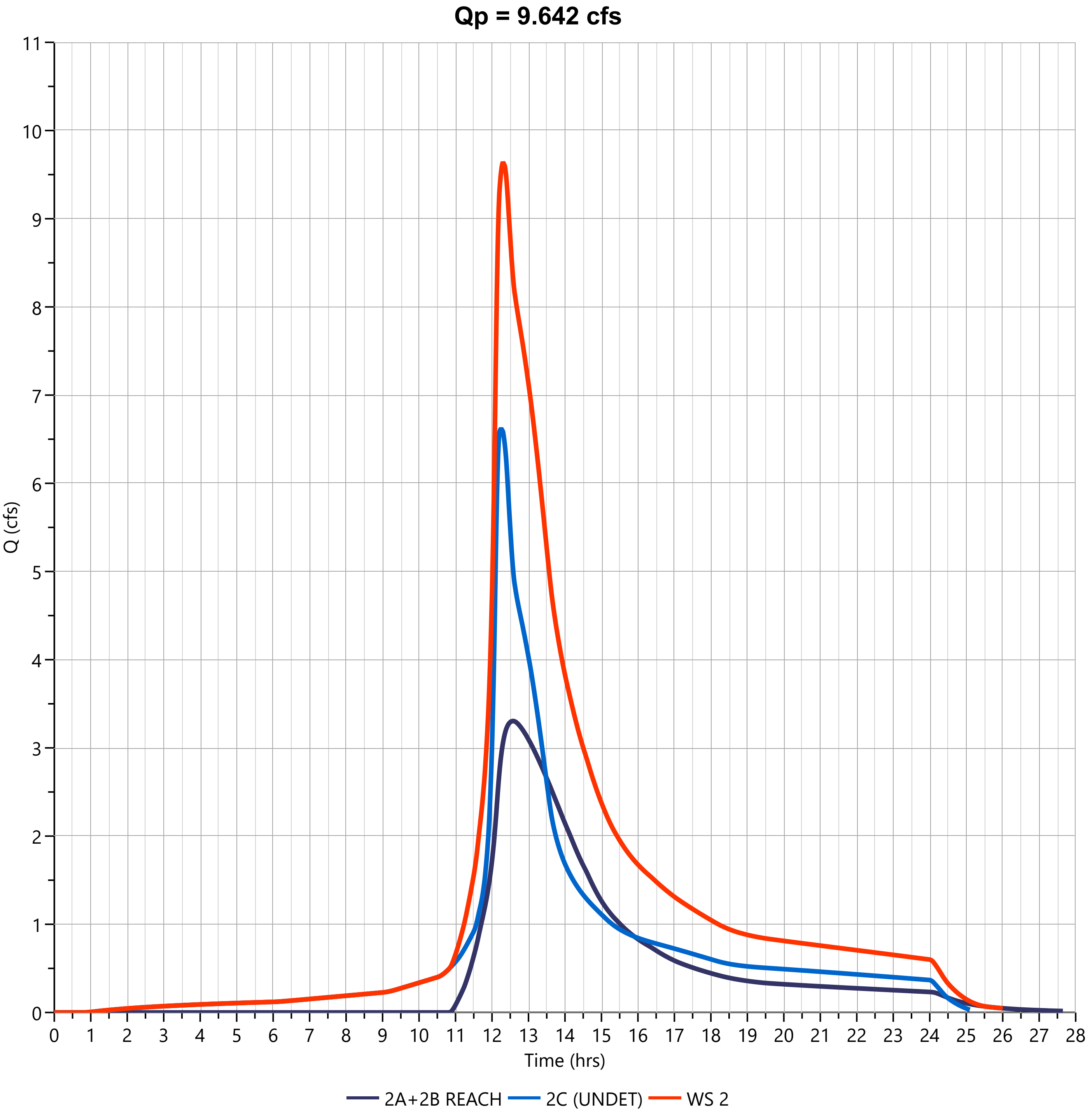
Qp = 6.623 cfs



WS 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 9.642 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.30 hrs
Time Interval	= 1 min	Hydrograph Volume	= 107,122 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



Hydrograph 100-yr Summary

Hydrology Studio v 3.0.0.44

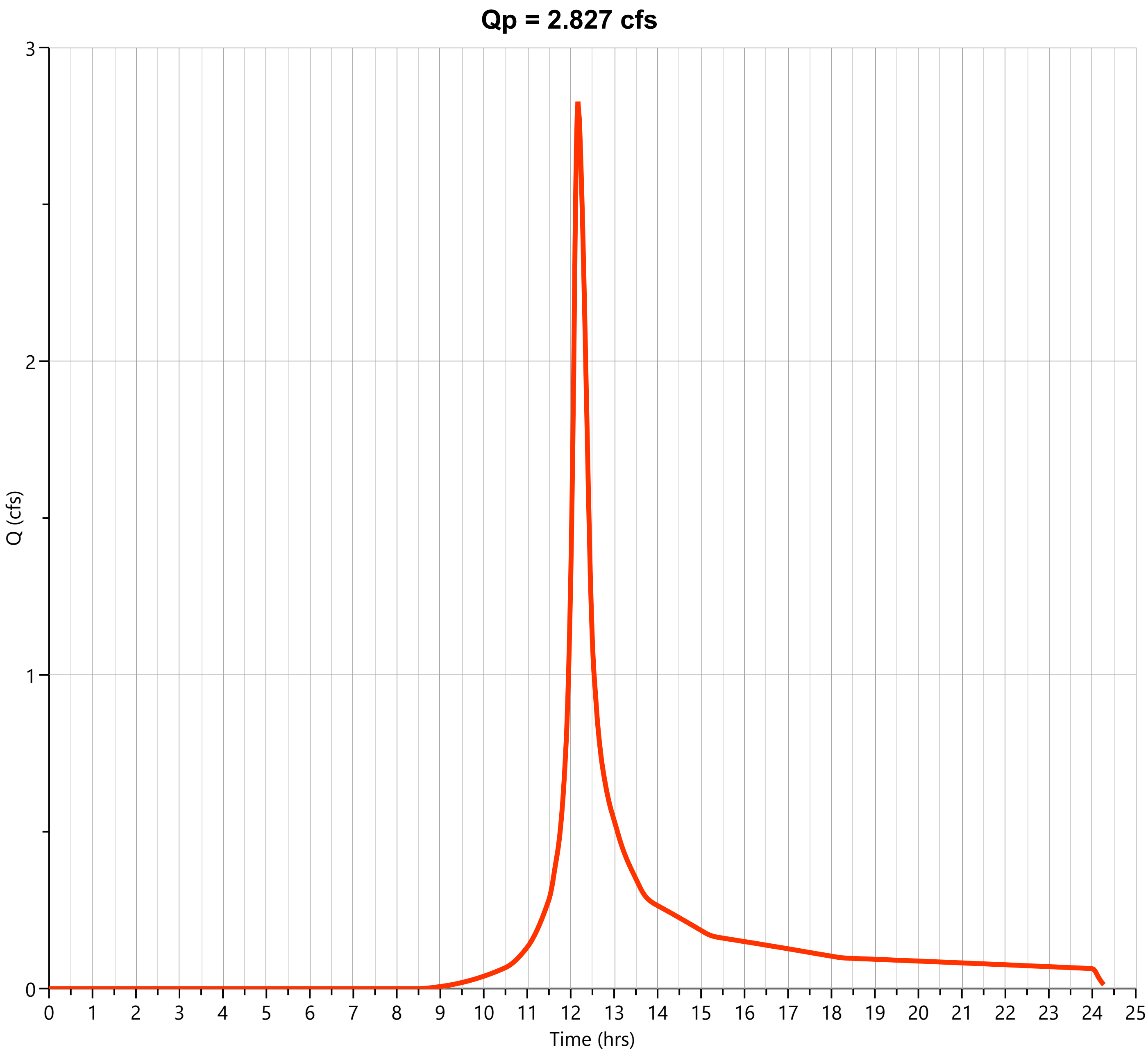
File: 102054601 - Proposed.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	1A (DET) PERV	2.827	12.17	12,205	----		
2	NRCS Runoff	1A (DET) IMP	10.13	12.10	35,416	----		
3	Junction	1A (DET)	12.50	12.10	47,621	1, 2		
4	Pond Route	1A ROUTED	4.671	12.32	43,331	3	104.56	13,909
5	NRCS Runoff	1B (UNDET) PERV	6.137	12.32	38,953	----		
6	NRCS Runoff	1B (UNDET) IMP	0.810	12.13	3,448	----		
7	Junction	1B (UNDET)	6.561	12.27	42,400	5, 6		
8	Junction	WS 1	11.19	12.28	85,731	4, 7		
9	NRCS Runoff	2A (DET) PERV	4.395	12.17	19,015	----		
10	NRCS Runoff	2A (DET) IMP	10.76	12.10	37,610	----		
11	Junction	2A (DET)	14.43	12.10	56,625	9, 10		
12	Pond Route	2A ROUTED	4.150	12.45	52,127	11	105.86	19,215
13	NRCS Runoff	2B (DET) PERV	2.812	12.10	8,137	----		
14	NRCS Runoff	2B (DET) IMP	11.56	12.10	40,431	----		
15	Junction	2B (DET)	14.38	12.10	48,568	13, 14		
16	Pond Route	2B ROUTED	2.236	12.57	43,710	15	104.53	22,058
17	Junction	2A+2B	6.373	12.47	95,838	12, 16		
18	Reach	2A+2B REACH	6.359	12.53	95,778	17		
19	NRCS Runoff	2C (UNDET) PERV	12.90	12.55	112,743	----		
20	NRCS Runoff	2C (UNDET) IMP	8.841	12.18	47,440	----		
21	Junction	2C (UNDET)	18.14	12.35	160,184	19, 20		
22	Junction	WS 2	24.29	12.38	255,962	18, 21		

1A (DET) PERV

Hyd. No. 1

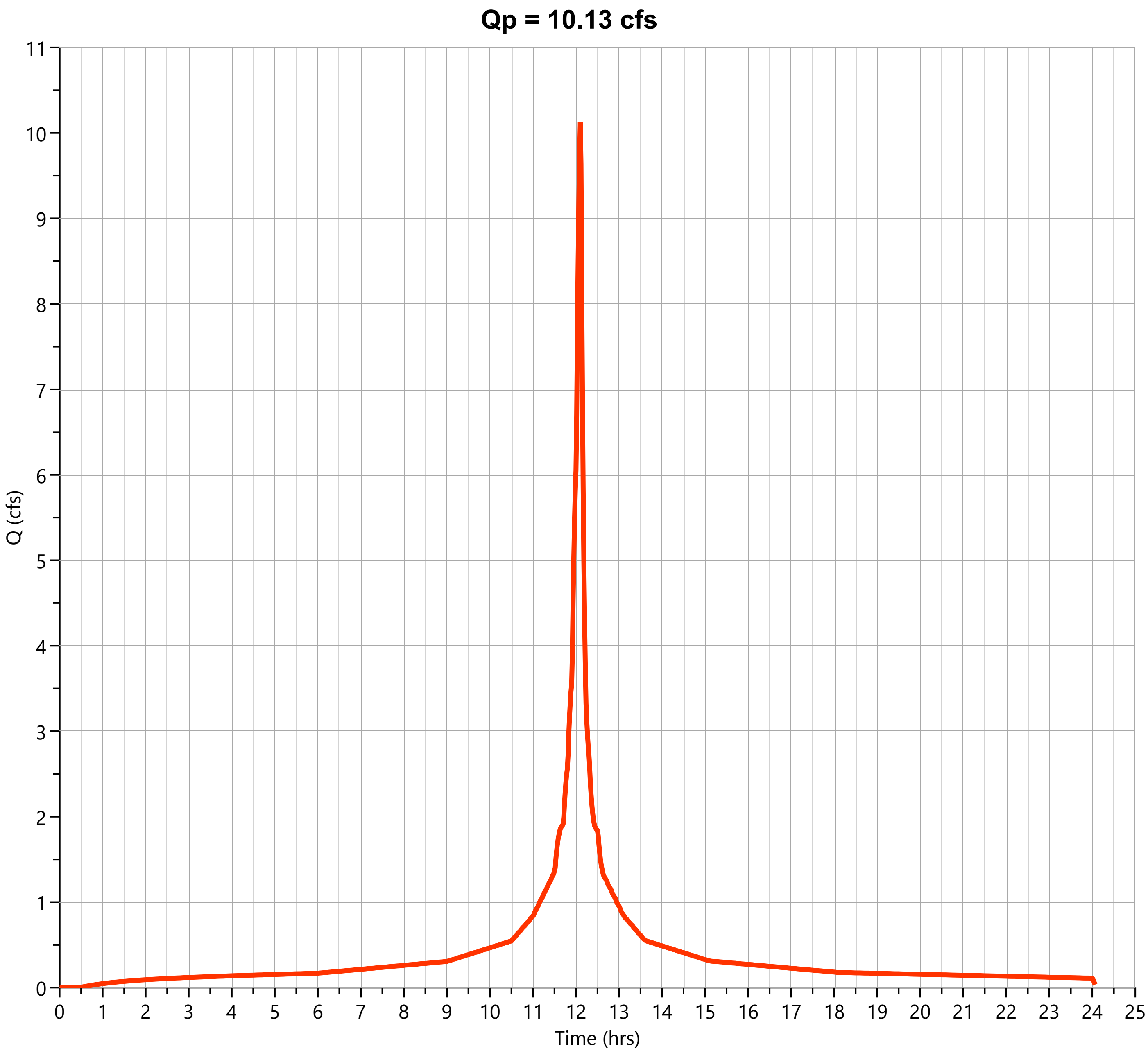
Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.827 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 1 min	Runoff Volume	= 12,205 cuft
Drainage Area	= 0.81 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 9.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1A (DET) IMP

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 10.13 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 35,416 cuft
Drainage Area	= 1.13 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284

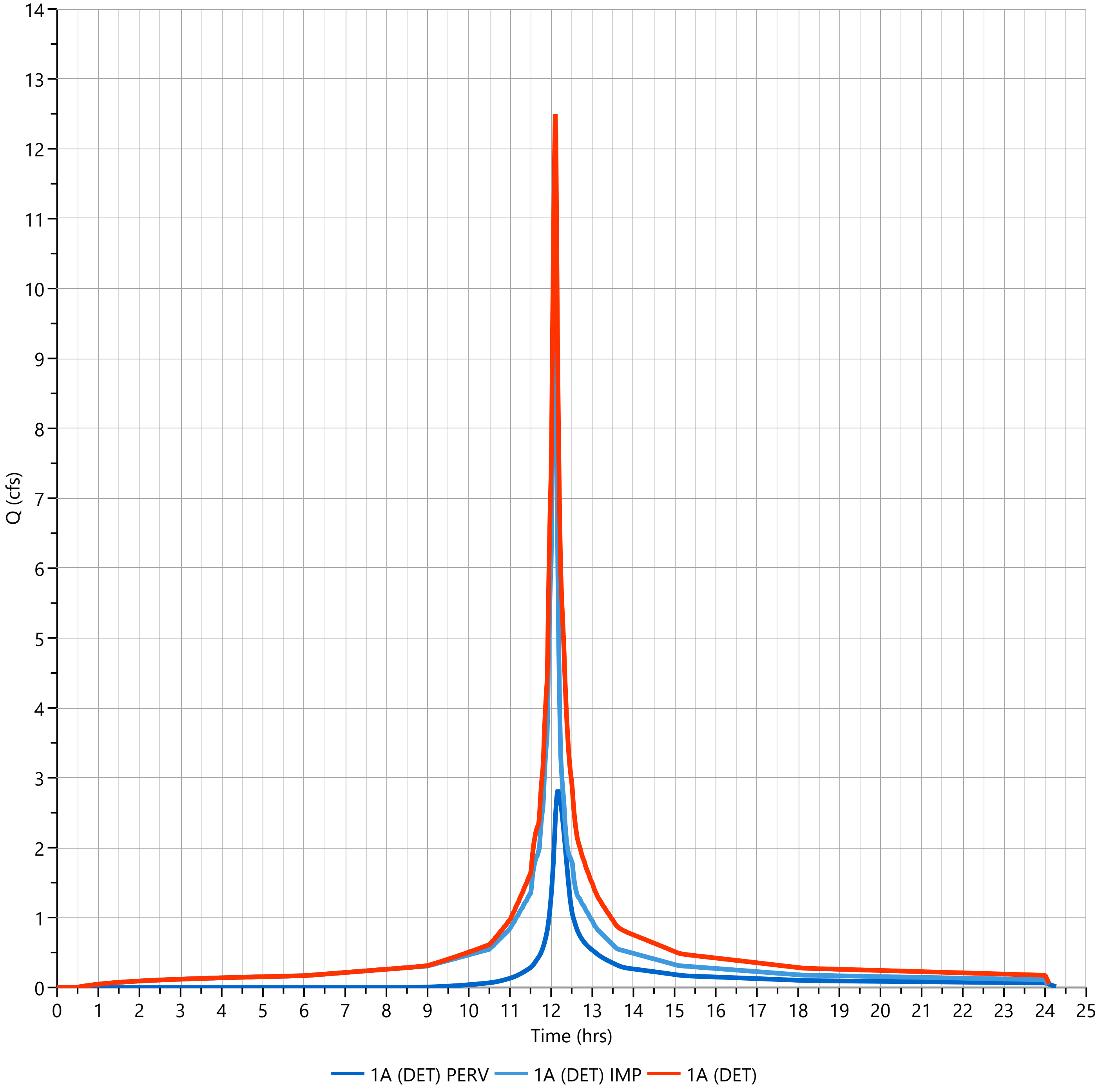


1A (DET)

Hyd. No. 3

Hydrograph Type	= Junction	Peak Flow	= 12.50 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 47,621 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.94 ac

Qp = 12.50 cfs



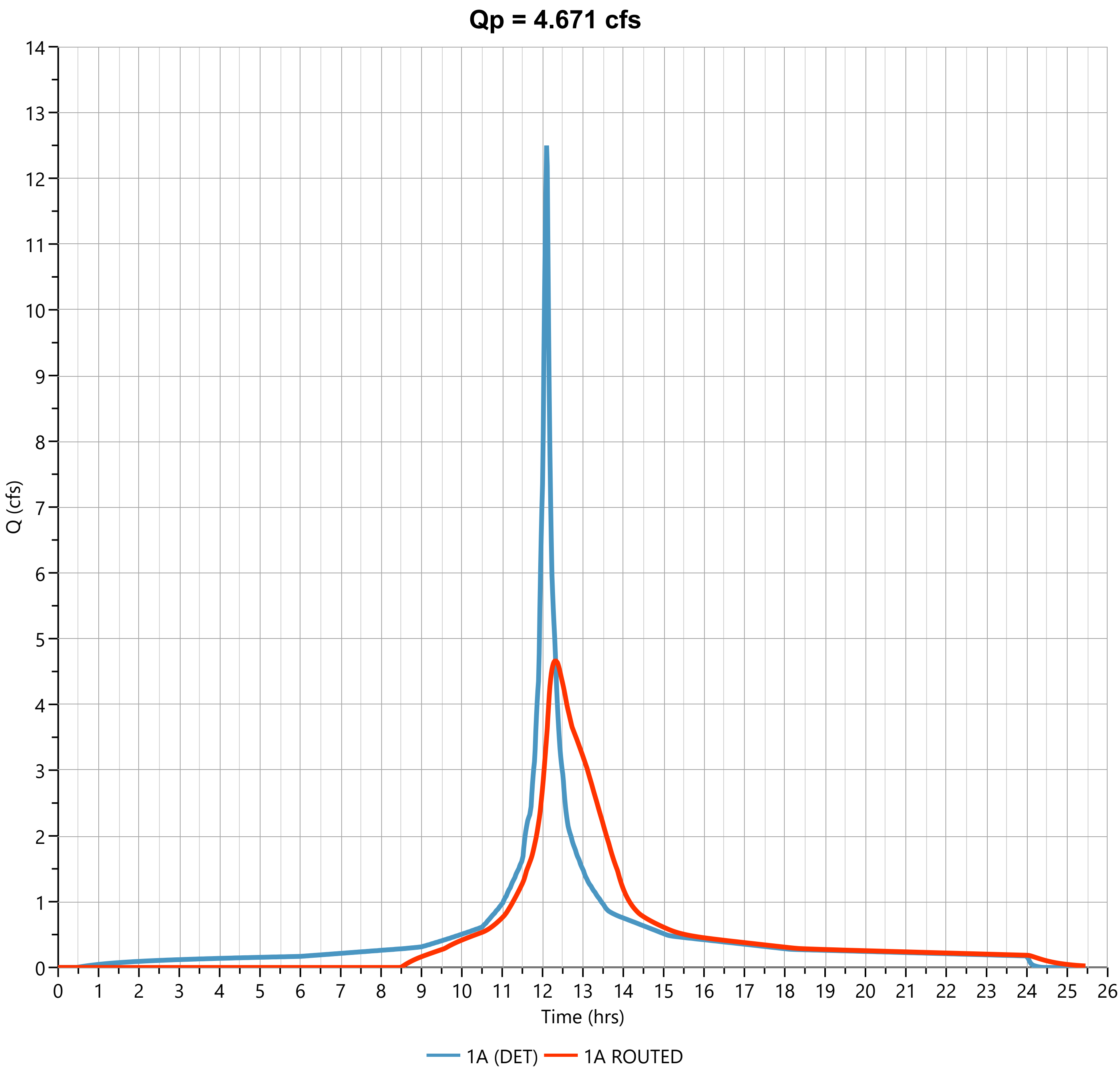
1A ROUTED

Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 4.671 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.32 hrs
Time Interval	= 1 min	Hydrograph Volume	= 43,331 cuft
Inflow Hydrograph	= 3 - 1A (DET)	Max. Elevation	= 104.56 ft
Pond Name	= Basin 2	Max. Storage	= 13,909 cuft

Pond Routing by Storage Indication Method

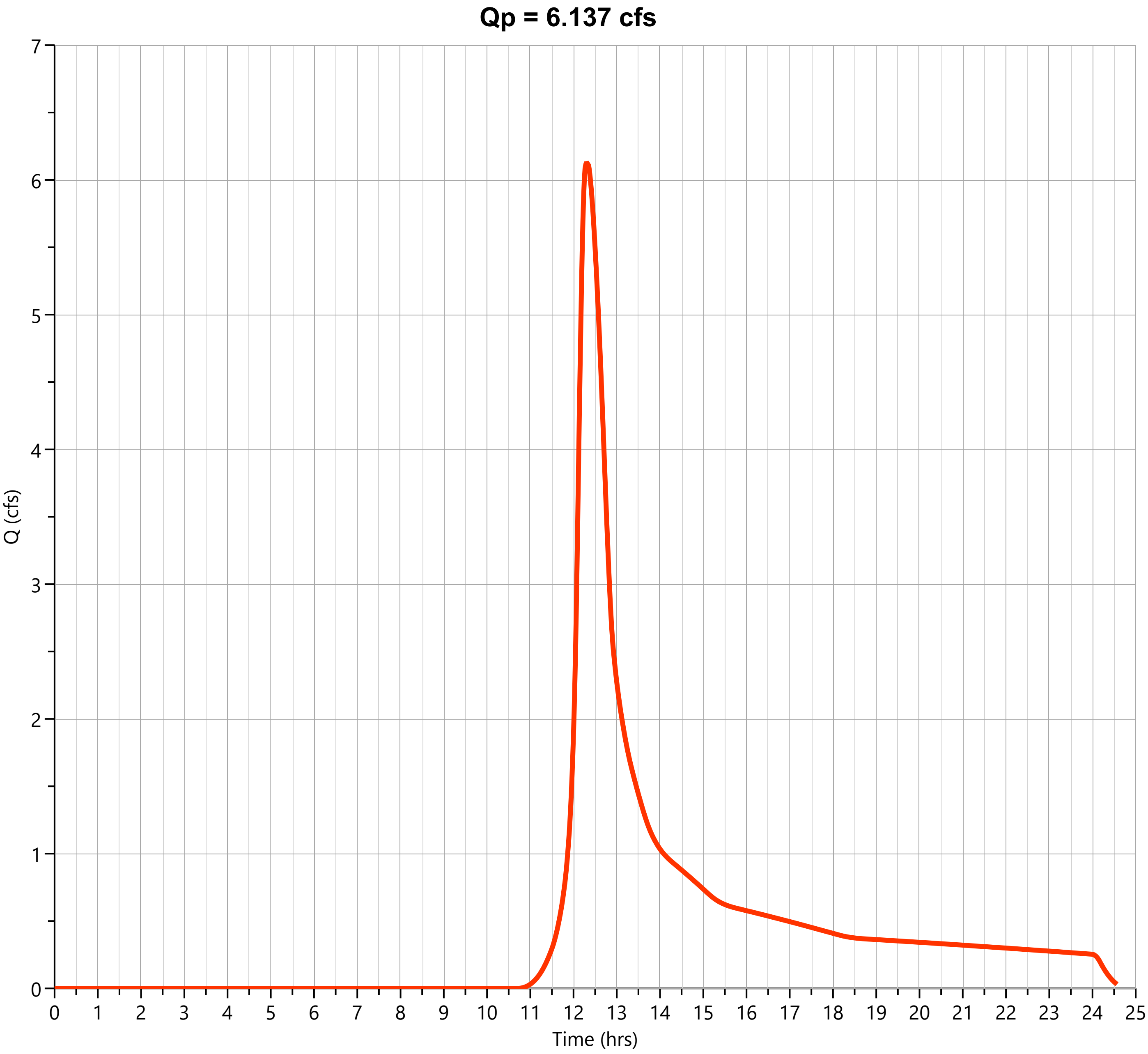
Center of mass detention time = 1.23 hrs



1B (UNDET) PERV

Hyd. No. 5

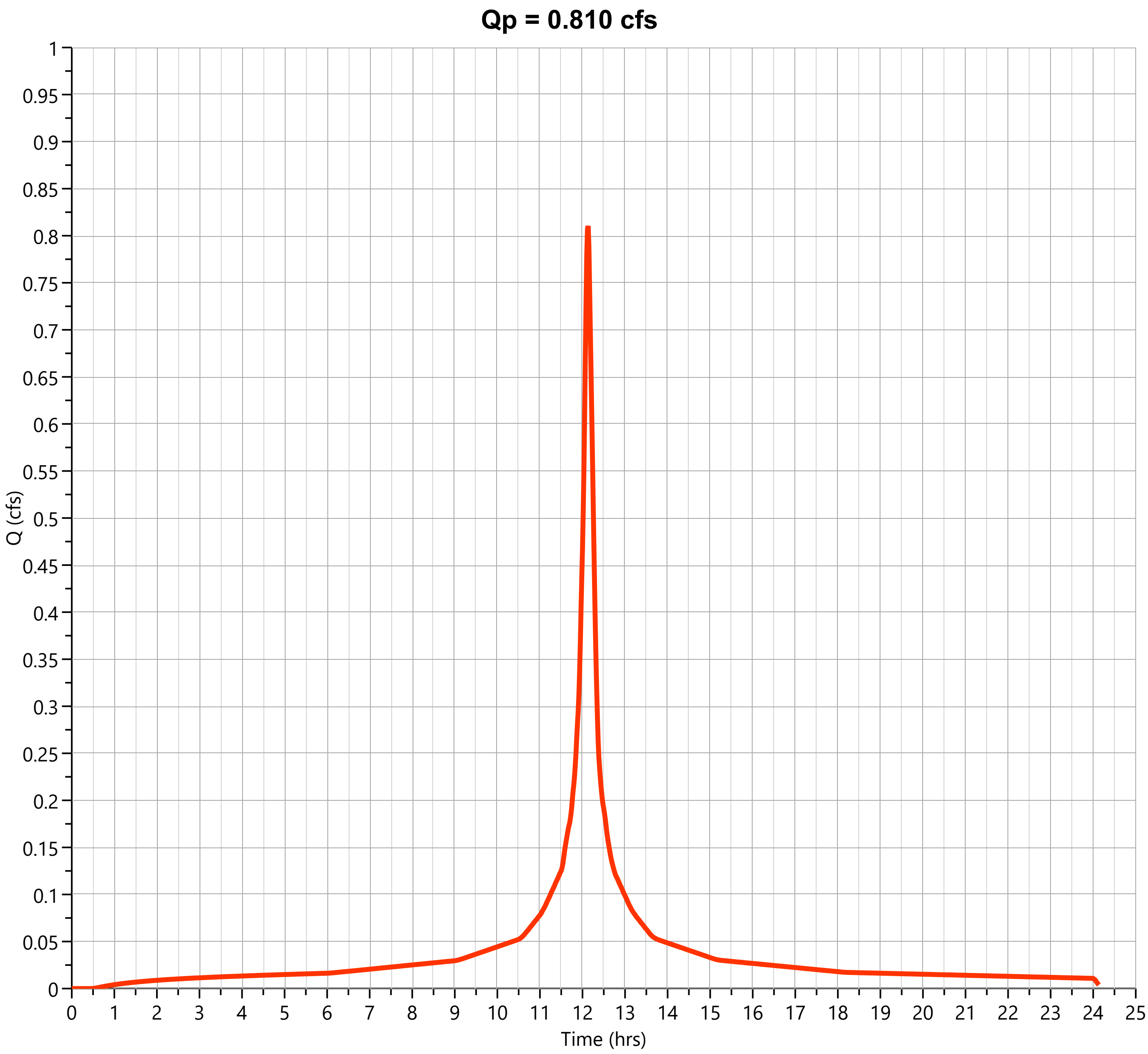
Hydrograph Type	= NRCS Runoff	Peak Flow	= 6.137 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.32 hrs
Time Interval	= 1 min	Runoff Volume	= 38,953 cuft
Drainage Area	= 3.92 ac	Curve Number	= 49.00
Tc Method	= User	Time of Conc. (Tc)	= 18.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1B (UNDET) IMP

Hyd. No. 6

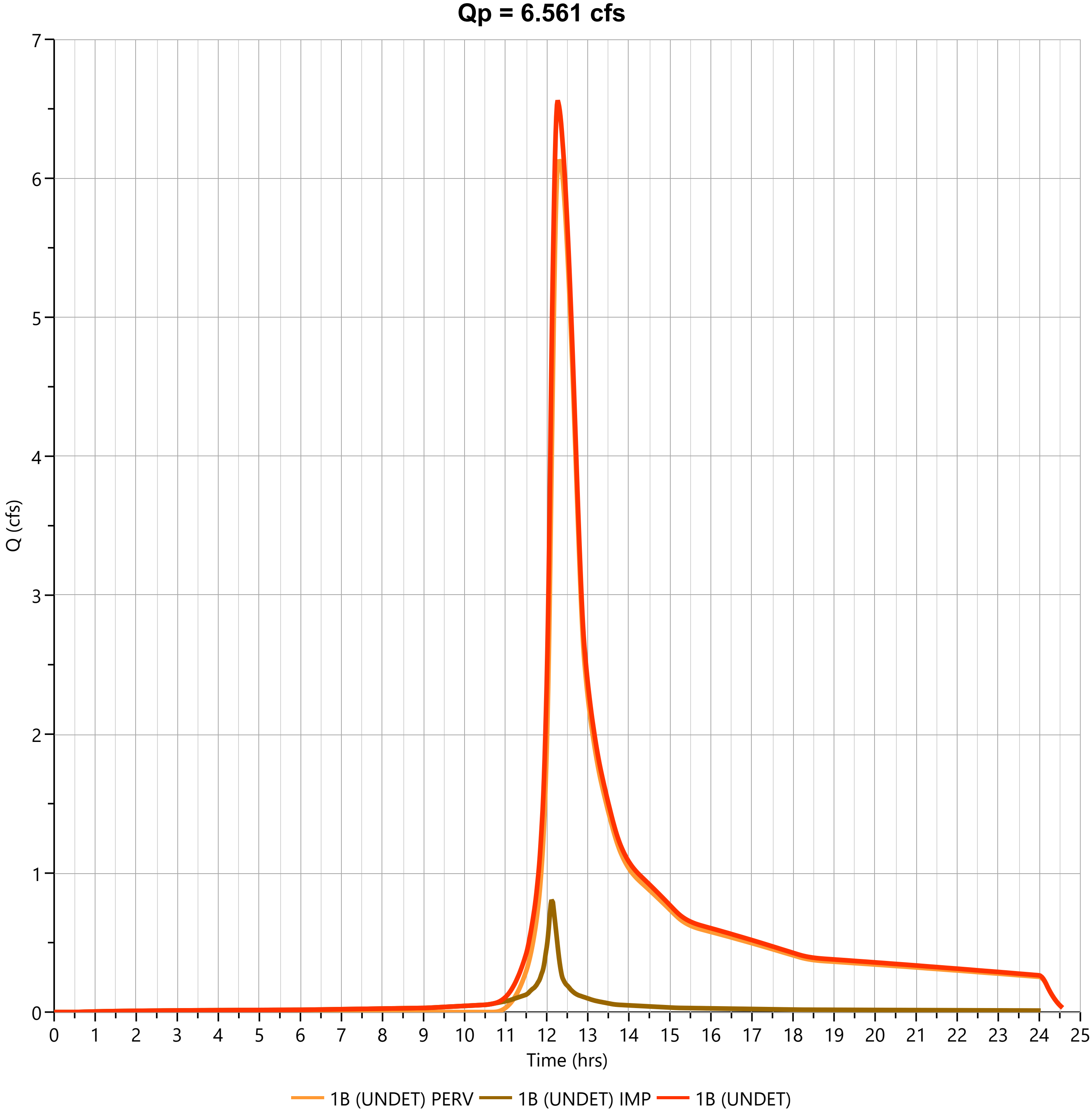
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.810 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Runoff Volume	= 3,448 cuft
Drainage Area	= 0.11 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1B (UNDET)

Hyd. No. 7

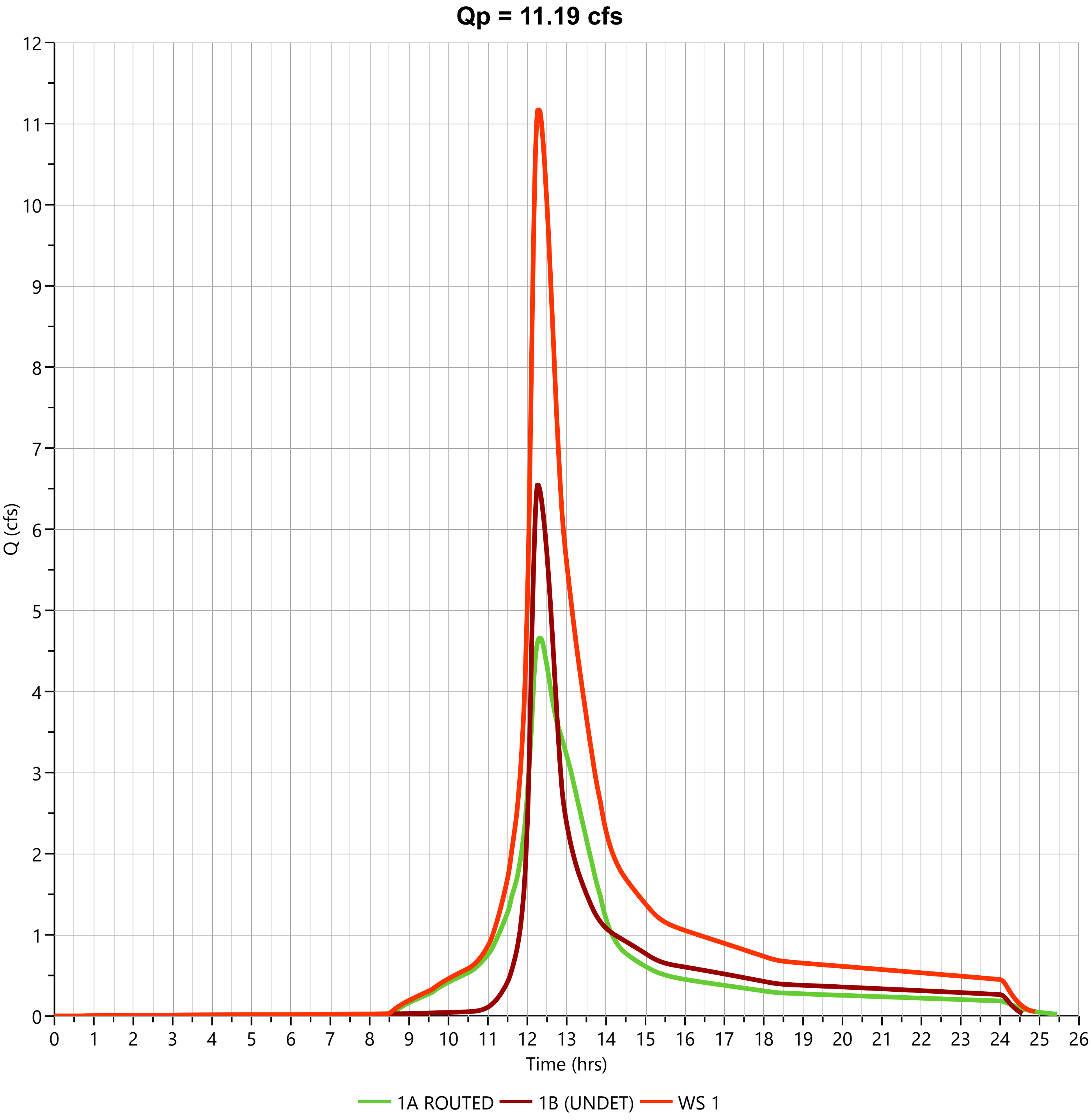
Hydrograph Type	= Junction	Peak Flow	= 6.561 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.27 hrs
Time Interval	= 1 min	Hydrograph Volume	= 42,400 cuft
Inflow Hydrographs	= 5, 6	Total Contrib. Area	= 4.03 ac



WS 1

Hyd. No. 8

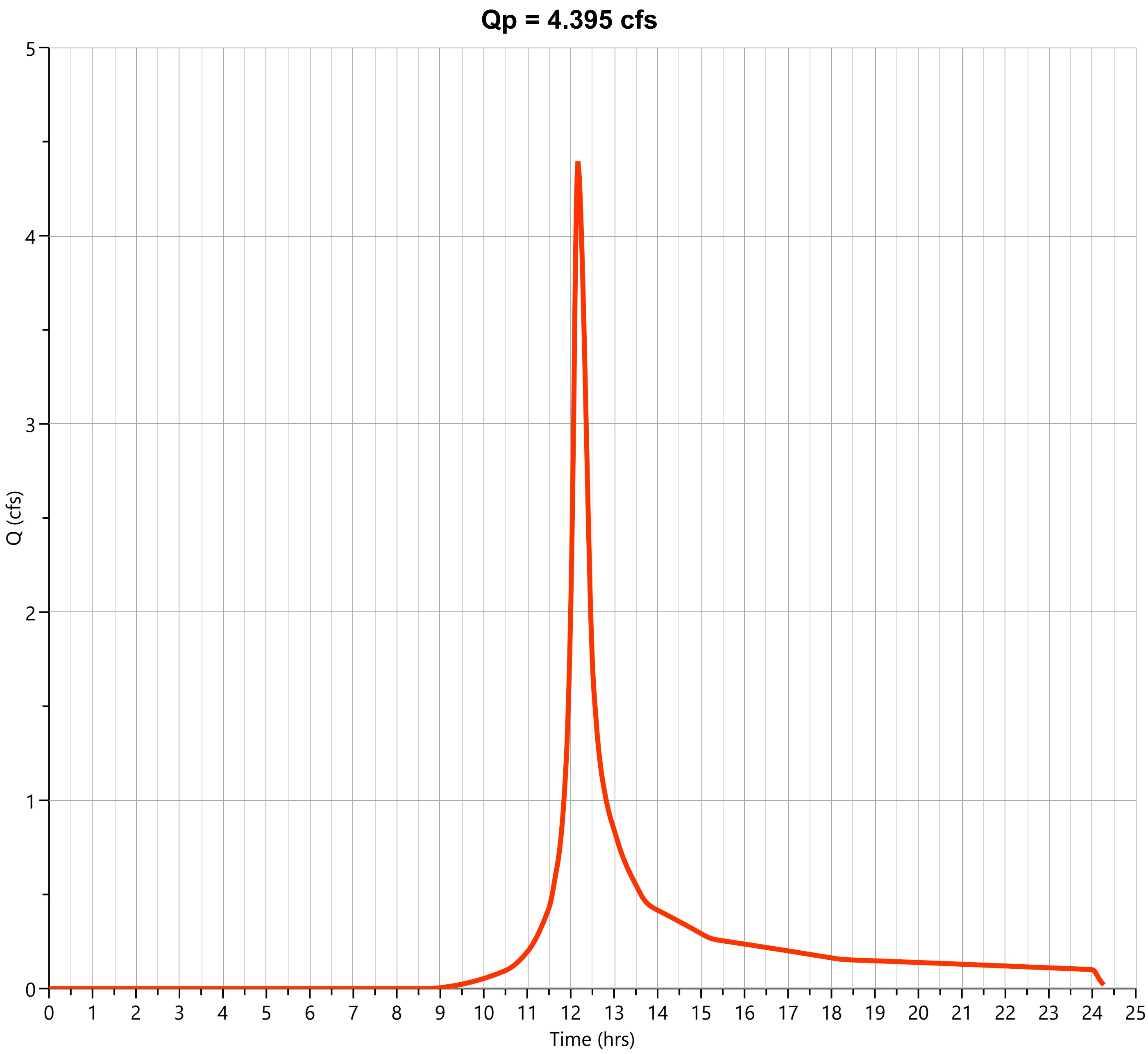
Hydrograph Type	= Junction	Peak Flow	= 11.19 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.28 hrs
Time Interval	= 1 min	Hydrograph Volume	= 85,731 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



2A (DET) PERV

Hyd. No. 9

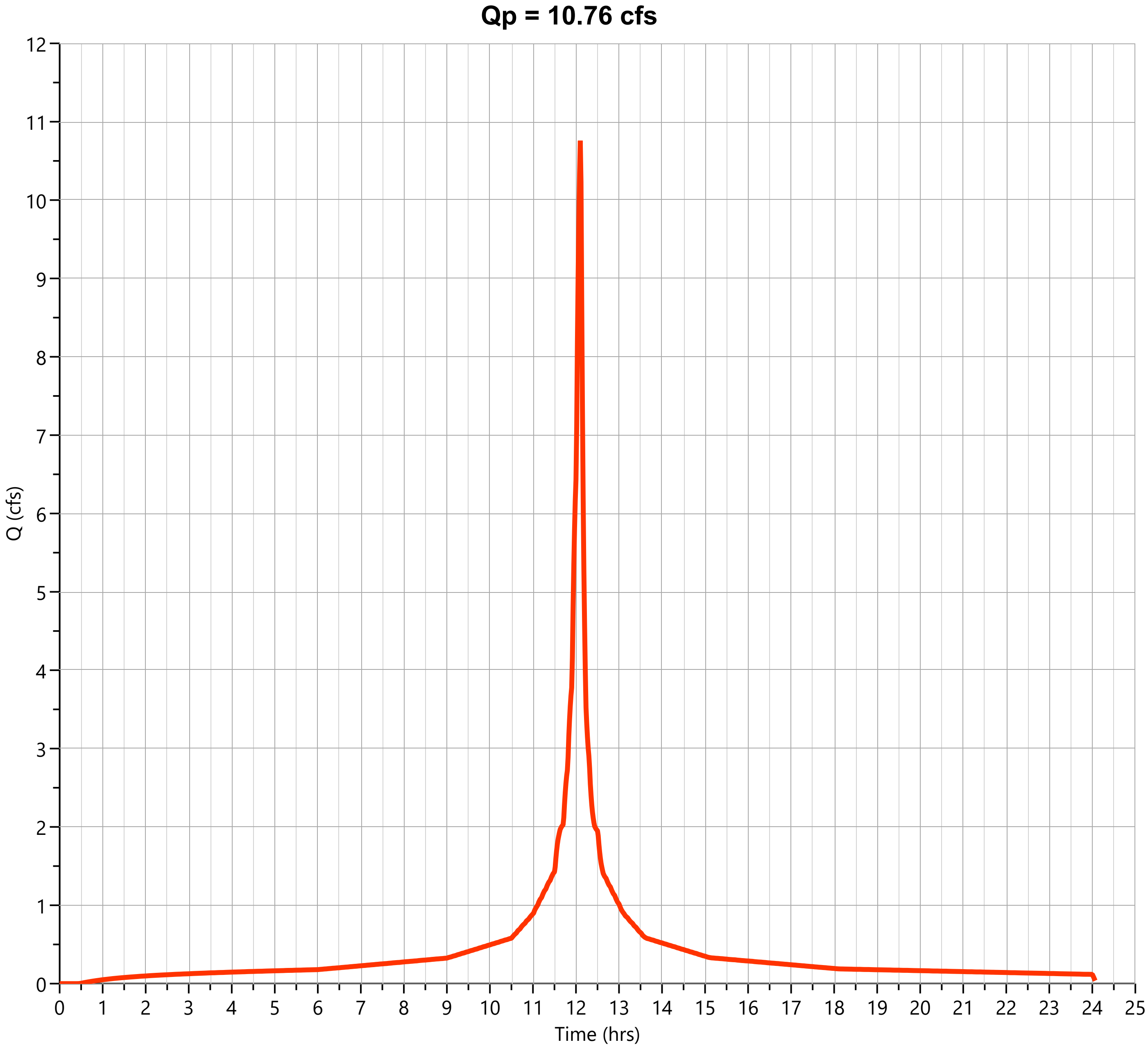
Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.395 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 1 min	Runoff Volume	= 19,015 cuft
Drainage Area	= 1.3 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2A (DET) IMP

Hyd. No. 10

Hydrograph Type	= NRCS Runoff	Peak Flow	= 10.76 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 37,610 cuft
Drainage Area	= 1.2 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



Hydrograph Report

Hydrology Studio v 3.0.0.44

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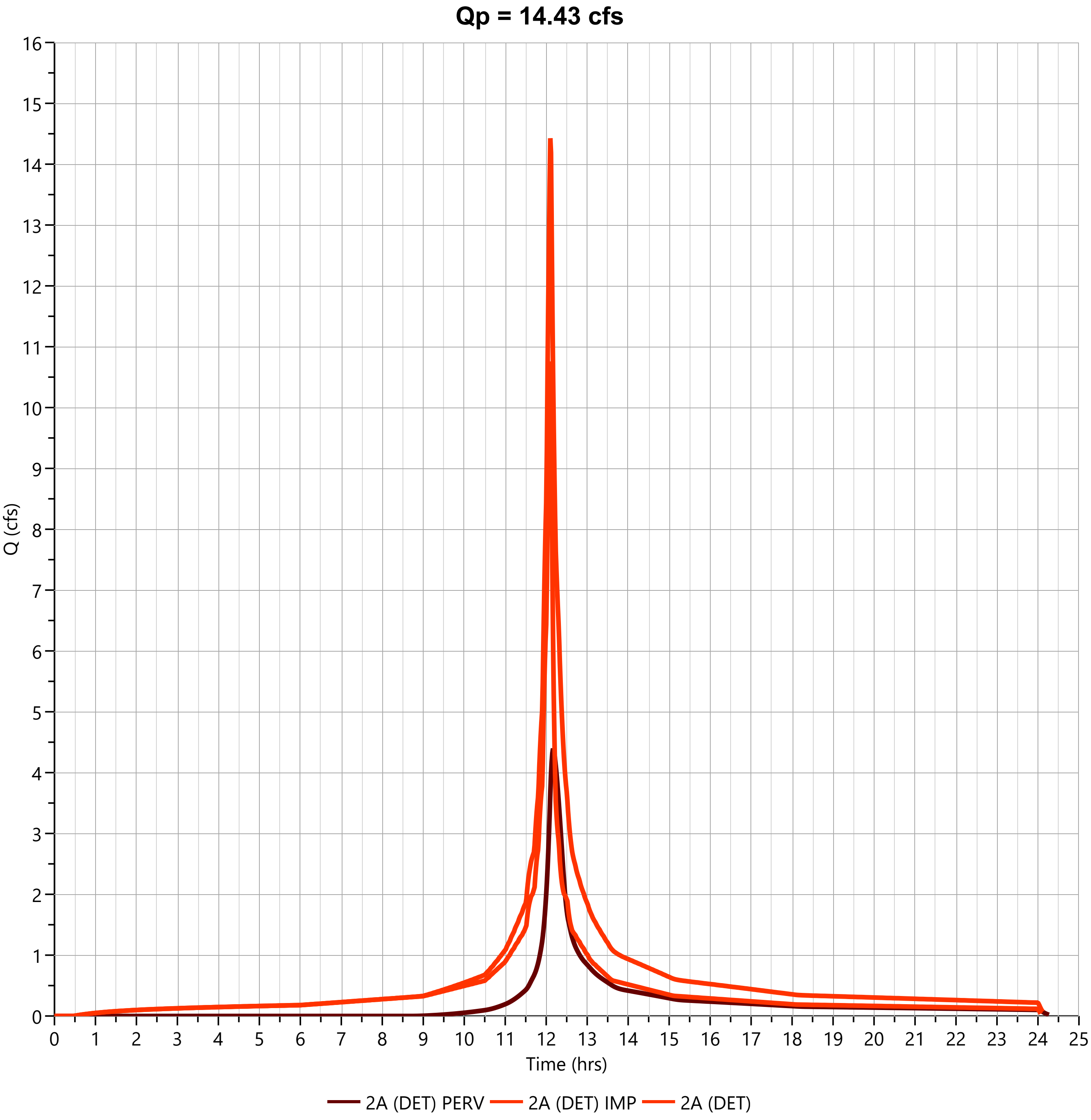
2A (DET)

Hyd. No. 11

Hydrograph Type	= Junction	Peak Flow	= 14.43 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 56,625 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 2.5 ac



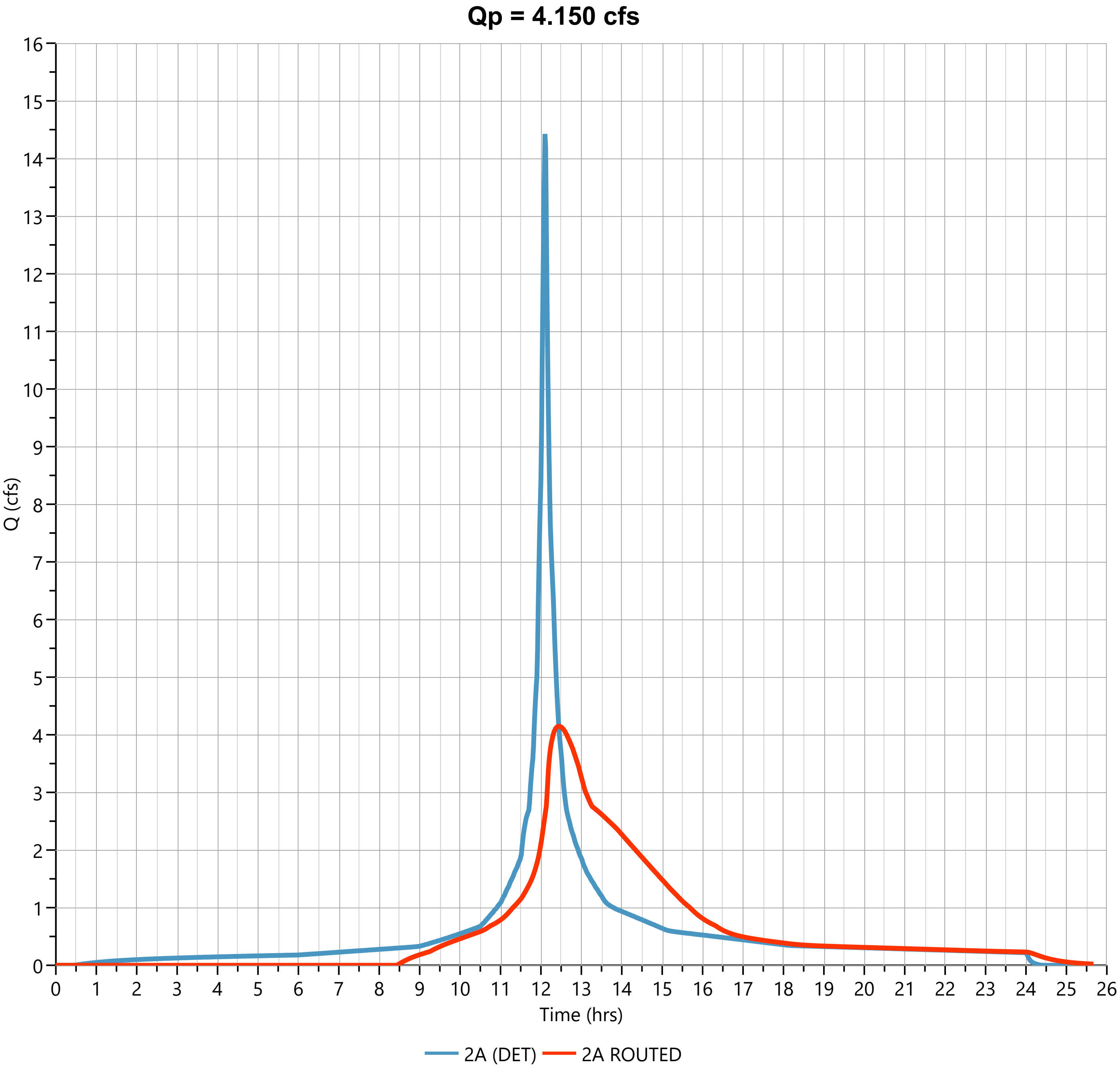
2A ROUTED

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 4.150 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.45 hrs
Time Interval	= 1 min	Hydrograph Volume	= 52,127 cuft
Inflow Hydrograph	= 11 - 2A (DET)	Max. Elevation	= 105.86 ft
Pond Name	= Basin 1	Max. Storage	= 19,215 cuft

Pond Routing by Storage Indication Method

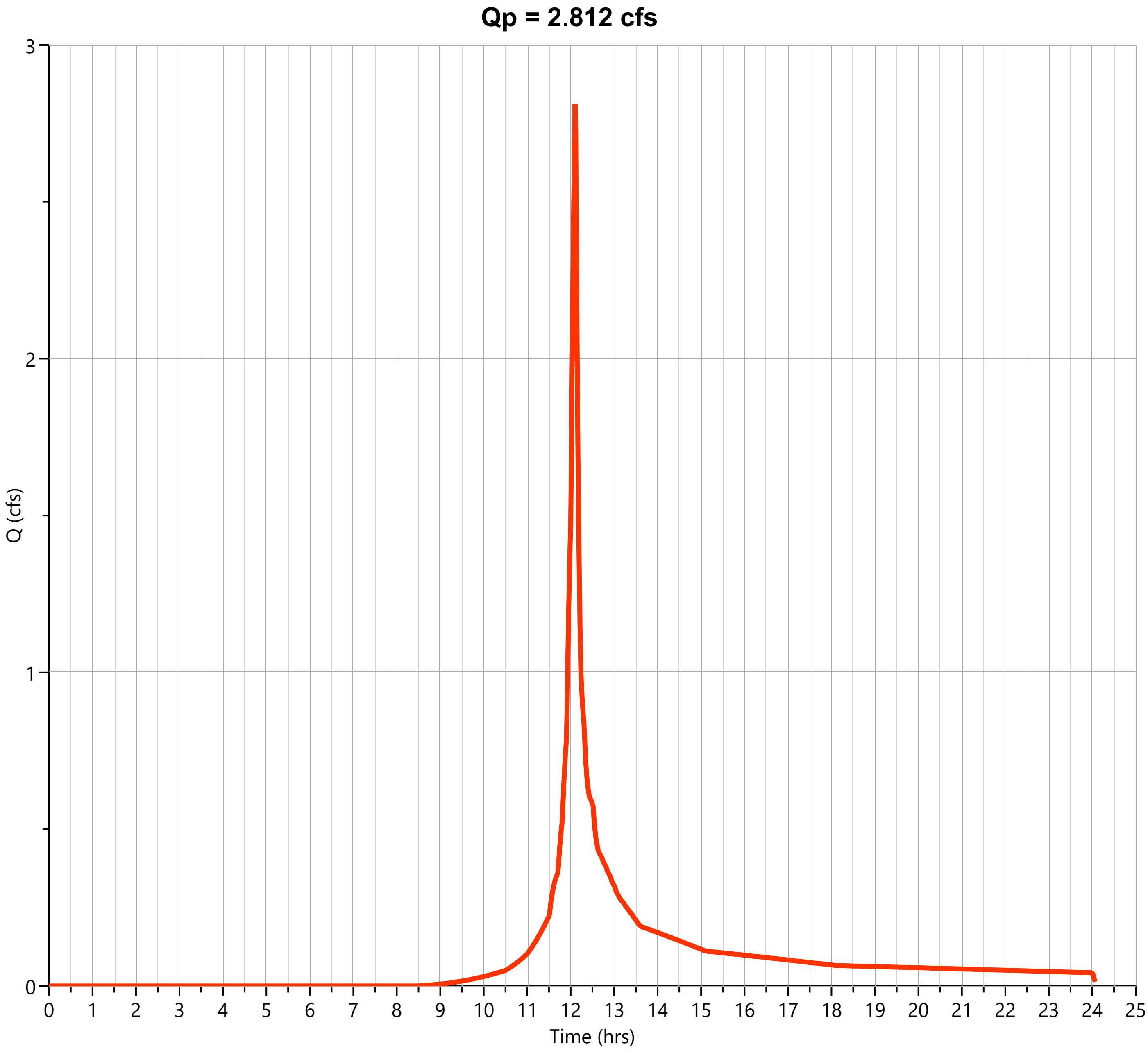
Center of mass detention time = 1.42 hrs



2B (DET) PERV

Hyd. No. 13

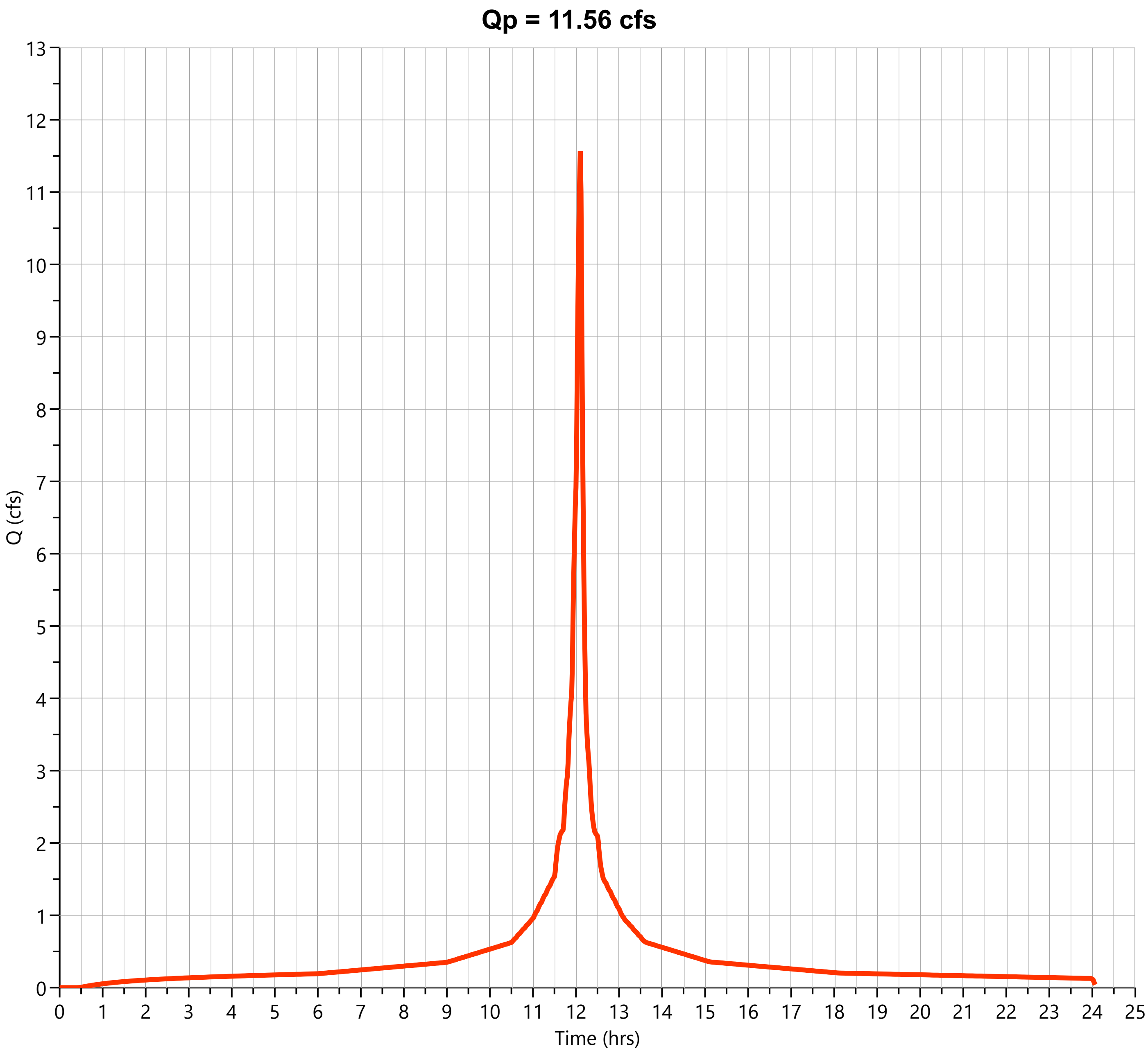
Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.812 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 8,137 cuft
Drainage Area	= 0.54 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 2.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2B (DET) IMP

Hyd. No. 14

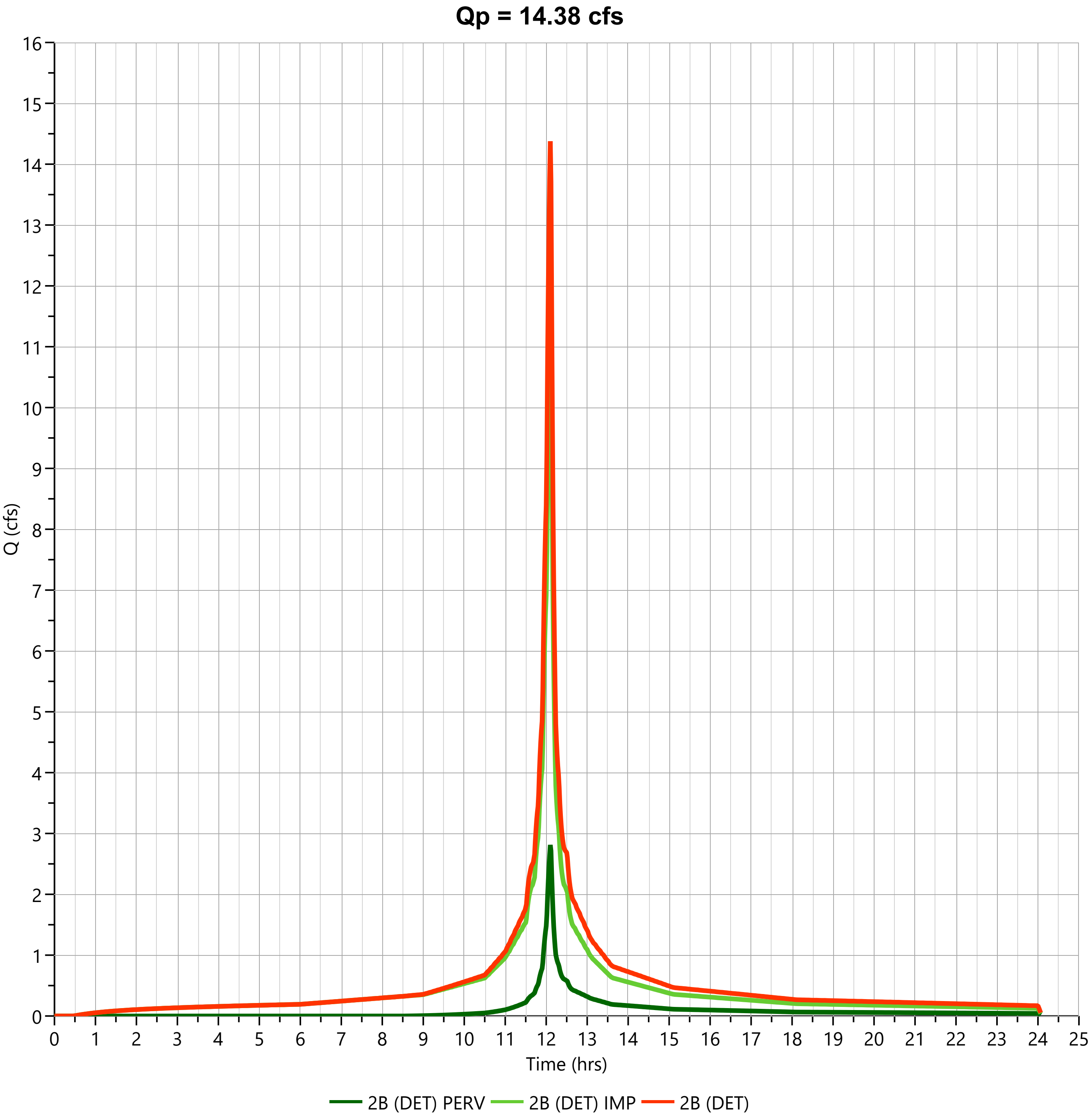
Hydrograph Type	= NRCS Runoff	Peak Flow	= 11.56 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 40,431 cuft
Drainage Area	= 1.29 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2B (DET)

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 14.38 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 48,568 cuft
Inflow Hydrographs	= 13, 14	Total Contrib. Area	= 1.83 ac



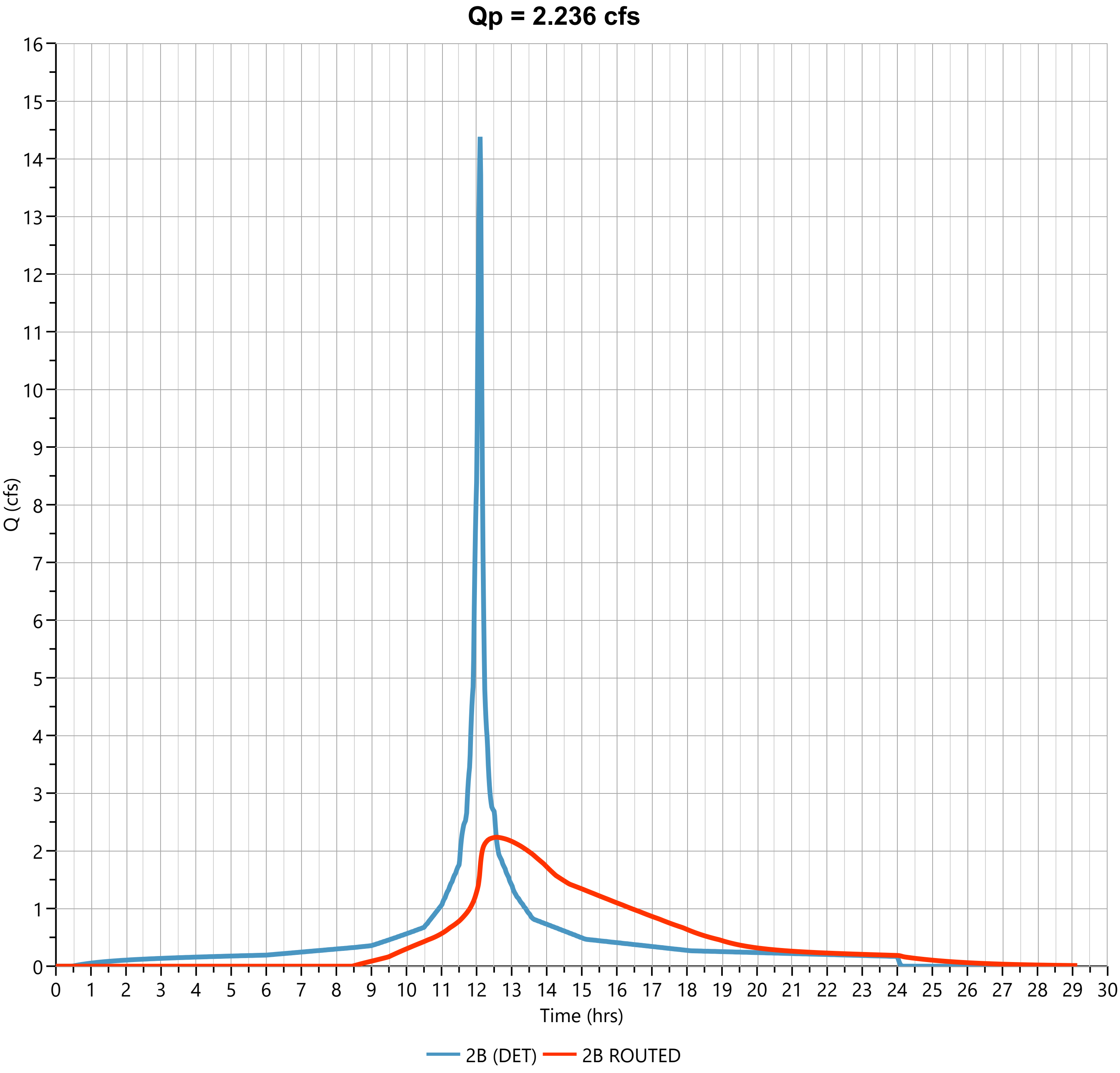
2B ROUTED

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 2.236 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.57 hrs
Time Interval	= 1 min	Hydrograph Volume	= 43,710 cuft
Inflow Hydrograph	= 15 - 2B (DET)	Max. Elevation	= 104.53 ft
Pond Name	= Basin 3	Max. Storage	= 22,058 cuft

Pond Routing by Storage Indication Method

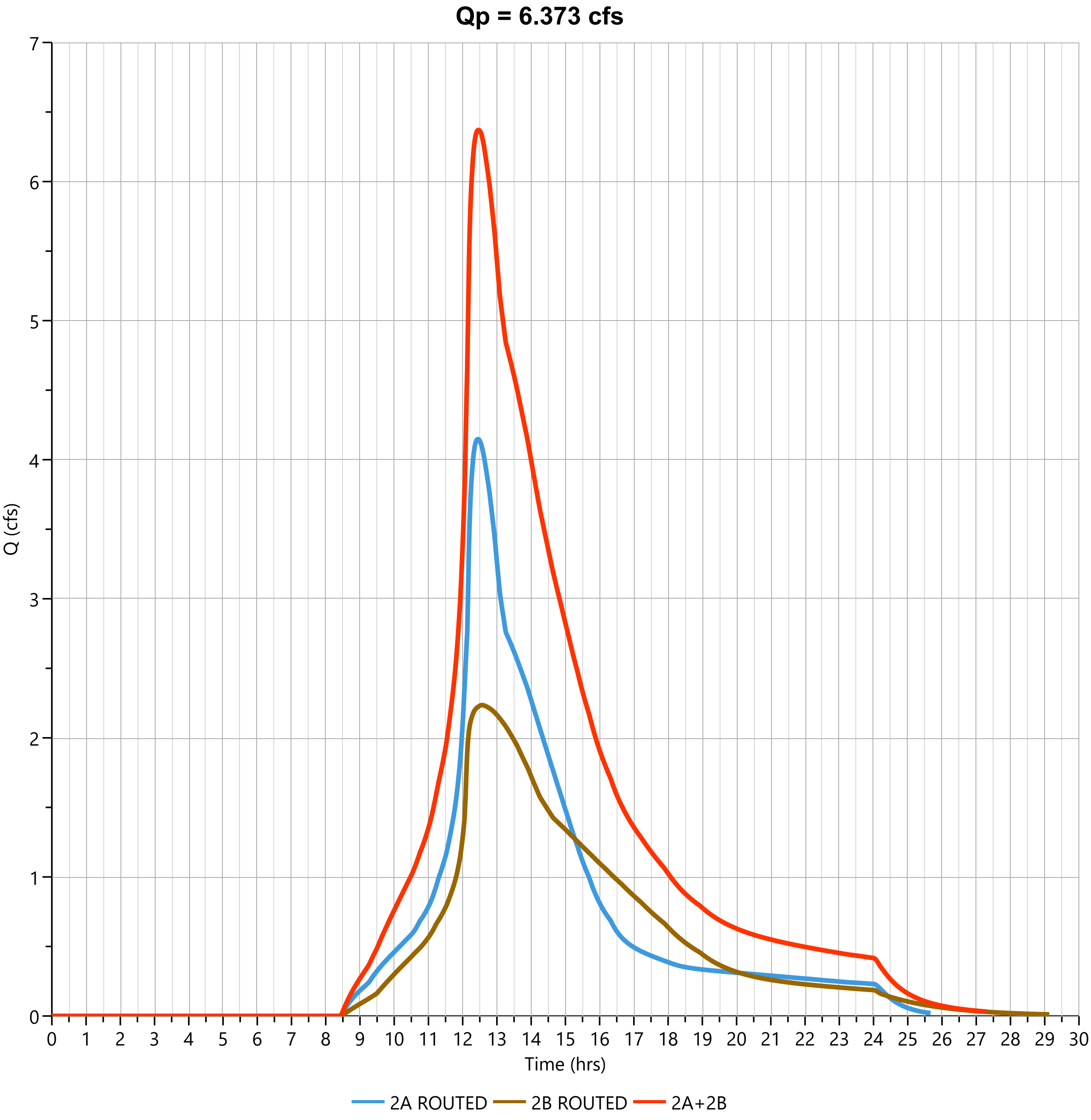
Center of mass detention time = 2.56 hrs



2A+2B

Hyd. No. 17

Hydrograph Type	= Junction	Peak Flow	= 6.373 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.47 hrs
Time Interval	= 1 min	Hydrograph Volume	= 95,838 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac

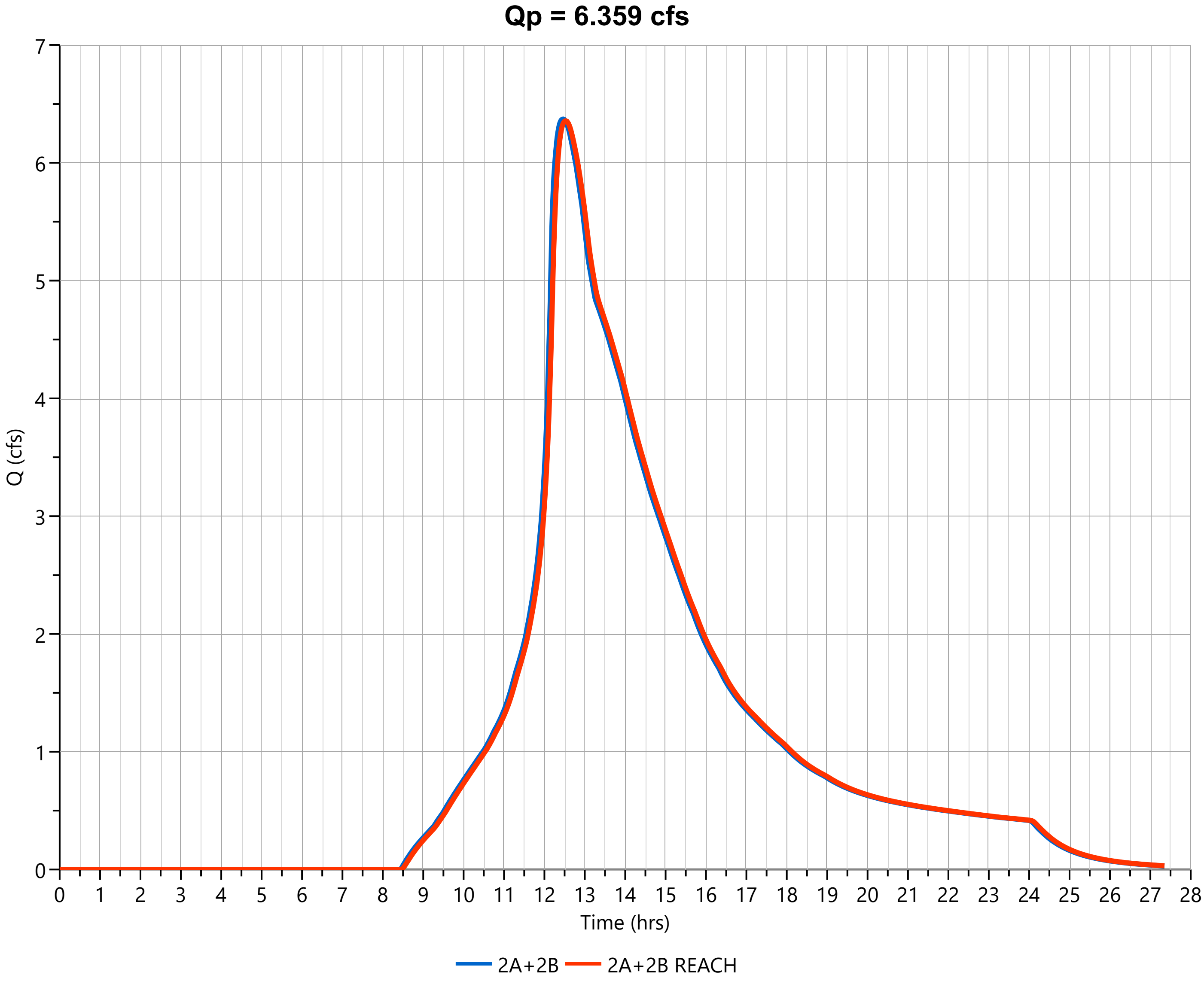


2A+2B REACH

Hyd. No. 18

Hydrograph Type	= Reach	Peak Flow	= 6.359 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.53 hrs
Time Interval	= 1 min	Hydrograph Volume	= 95,778 cuft
Inflow Hydrograph	= 17 - 2A+2B	Section Type	= Circular
Reach Length	= 435 ft	Channel Slope	= 0.50 %
Manning's n	= 0.012	Pipe Diameter	= 2.00 ft
Side Slope (h:v)	= n/a	Maximum Depth	= n/a
Rating Curve X	= 5.318	Average Velocity	= 2.03 ft/s
Rating Curve m	= 1.250	Routing Coeff.	= 0.2977

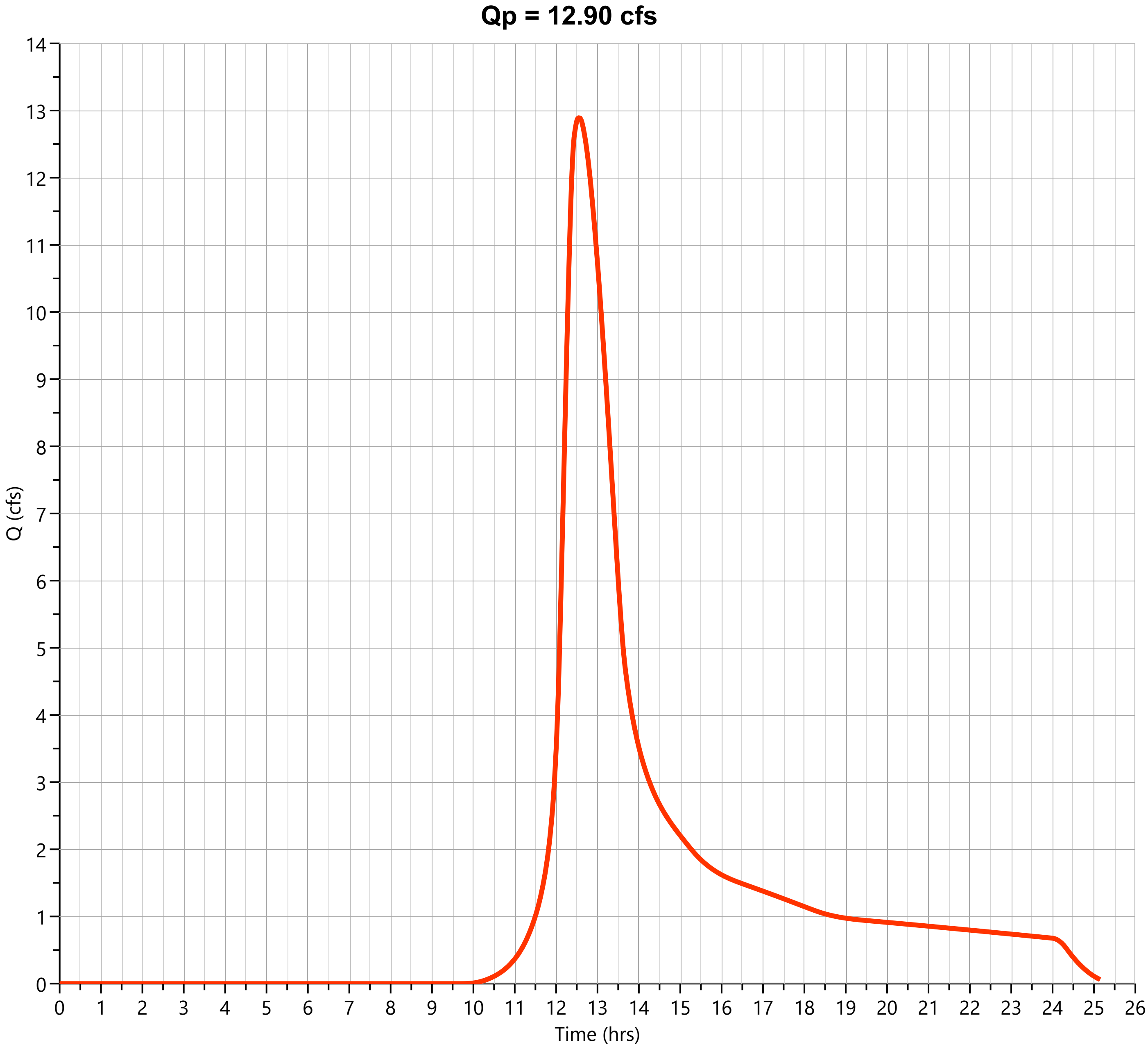
Modified Att-Kin routing method



2C (UNDET) PERV

Hyd. No. 19

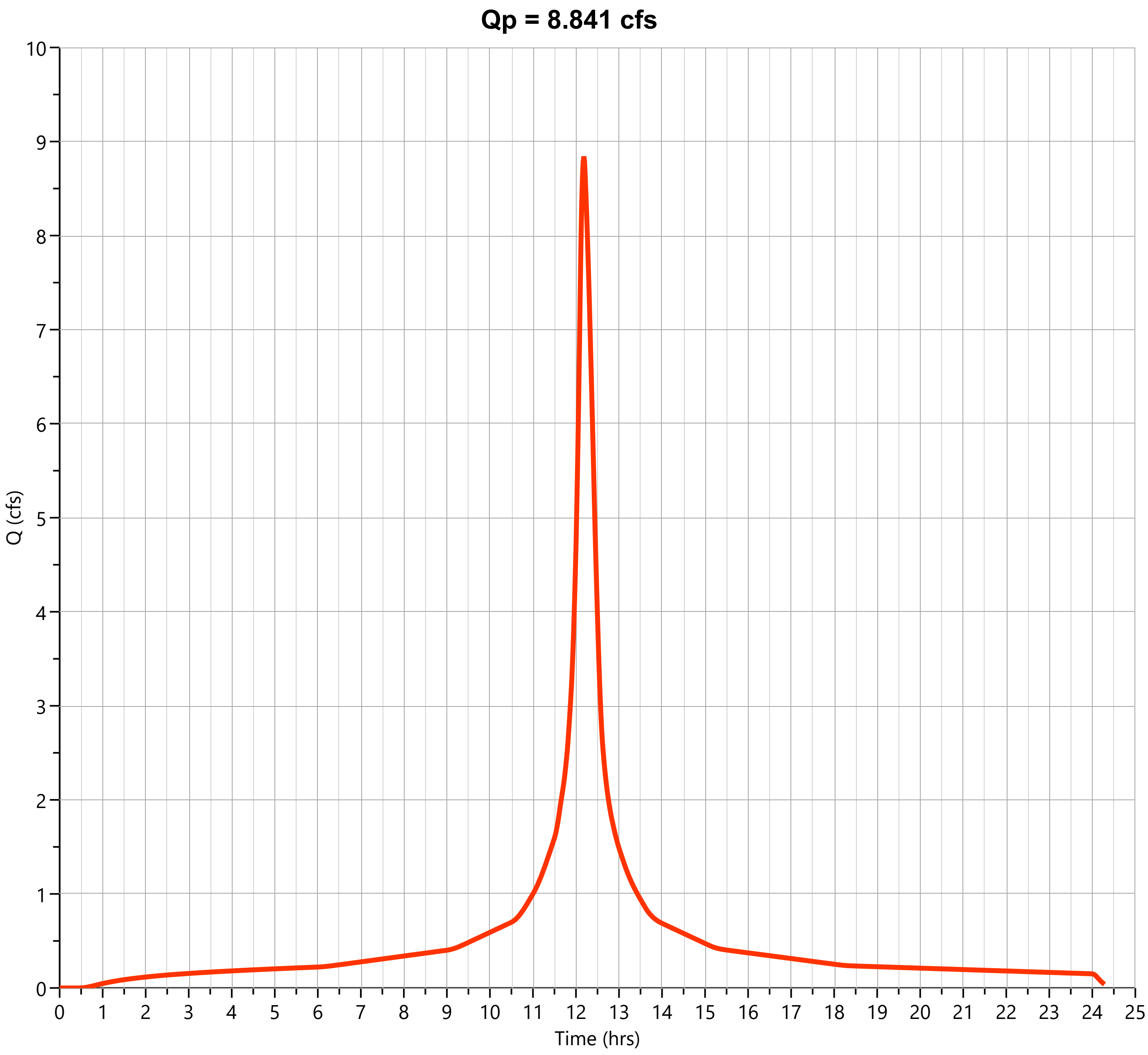
Hydrograph Type	= NRCS Runoff	Peak Flow	= 12.90 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.55 hrs
Time Interval	= 1 min	Runoff Volume	= 112,743 cuft
Drainage Area	= 9.02 ac	Curve Number	= 55.00
Tc Method	= User	Time of Conc. (Tc)	= 35.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2C (UNDET) IMP

Hyd. No. 20

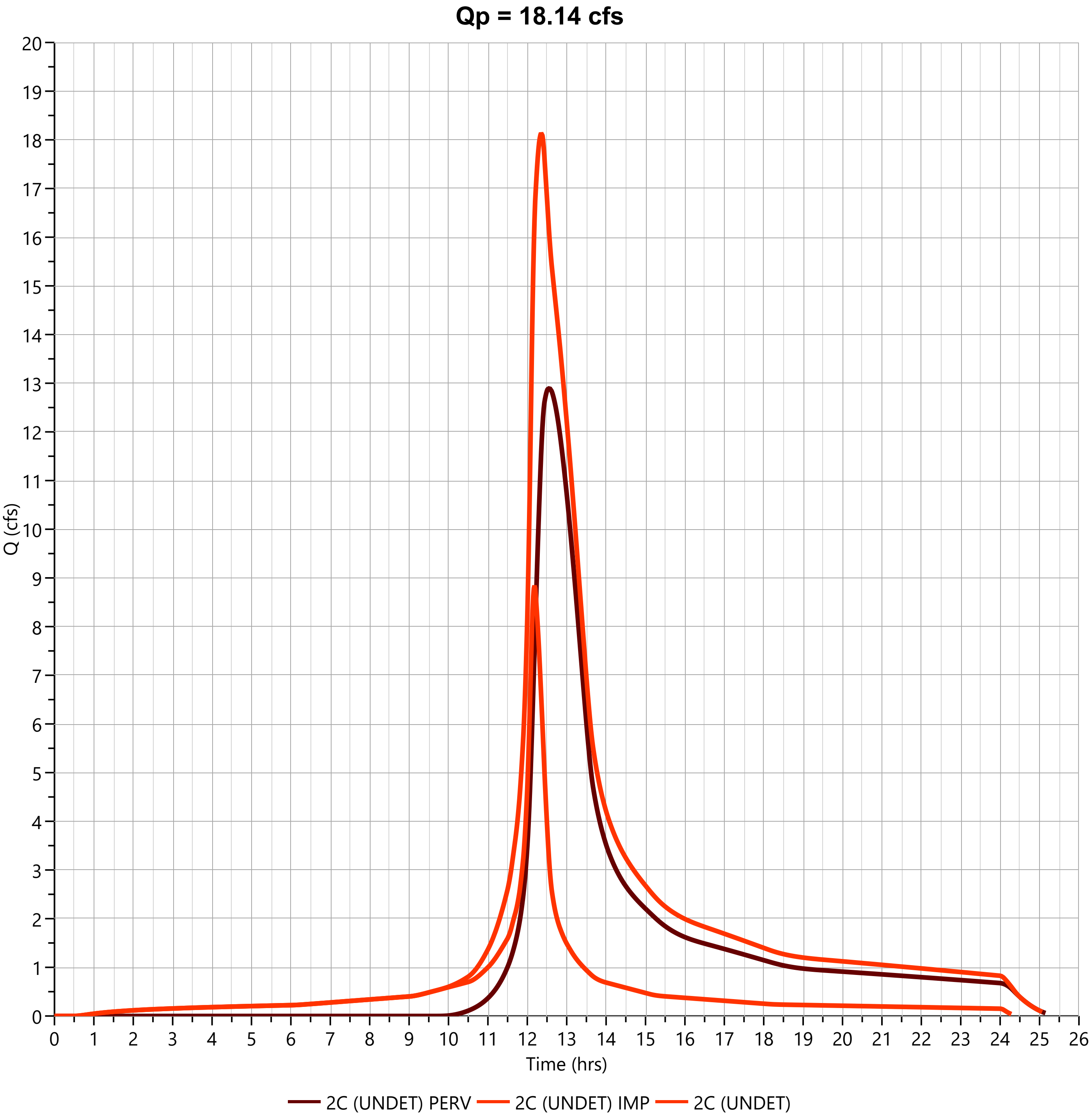
Hydrograph Type	= NRCS Runoff	Peak Flow	= 8.841 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 47,440 cuft
Drainage Area	= 1.49 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 8.96 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2C (UNDET)

Hyd. No. 21

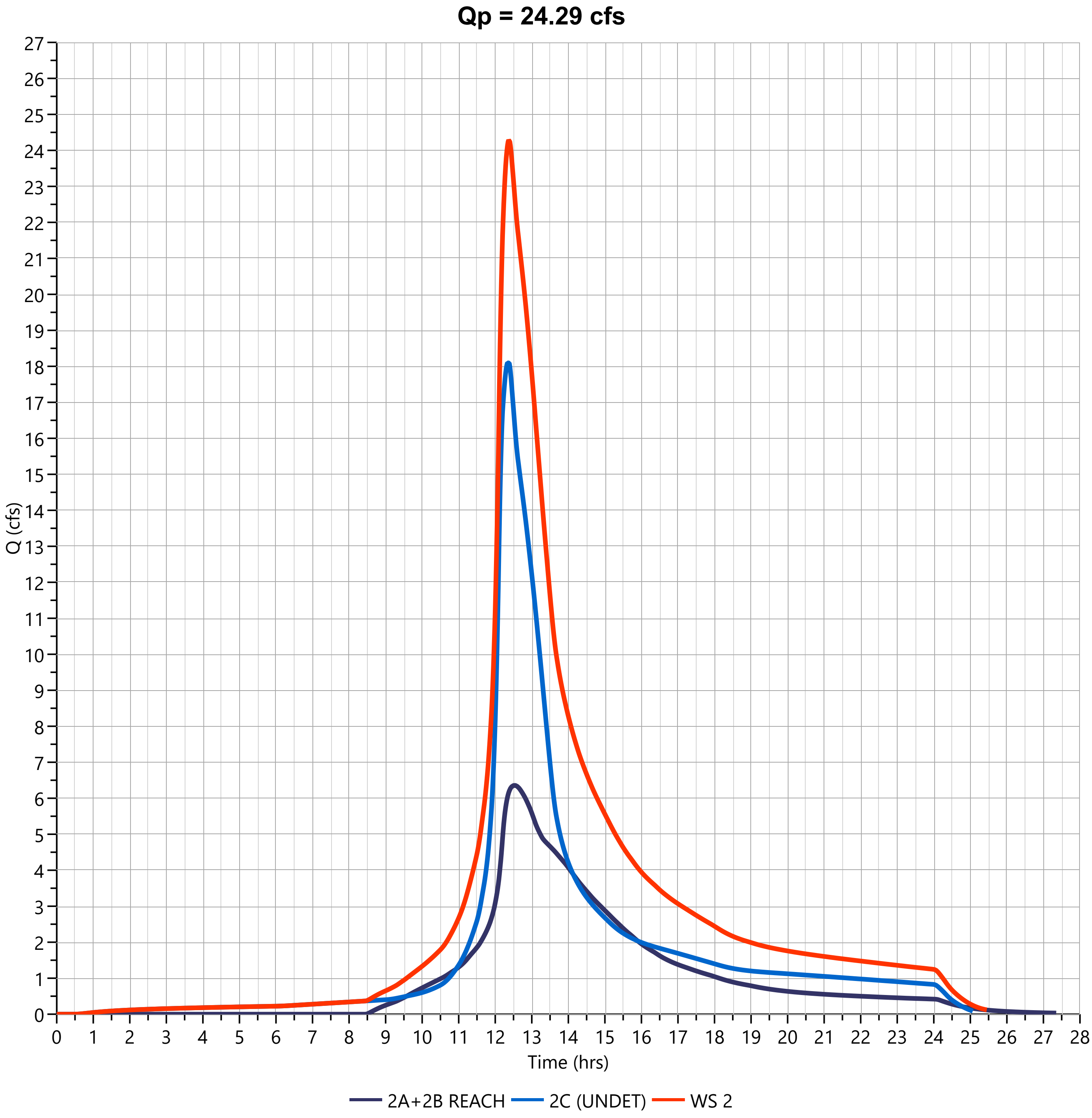
Hydrograph Type	= Junction	Peak Flow	= 18.14 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.35 hrs
Time Interval	= 1 min	Hydrograph Volume	= 160,184 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 10.51 ac



WS 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 24.29 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.38 hrs
Time Interval	= 1 min	Hydrograph Volume	= 255,962 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



PROPOSED RUNOFF HYDROGRAPHS "FUTURE" 2-, 10-, AND 100-YEAR STORMS

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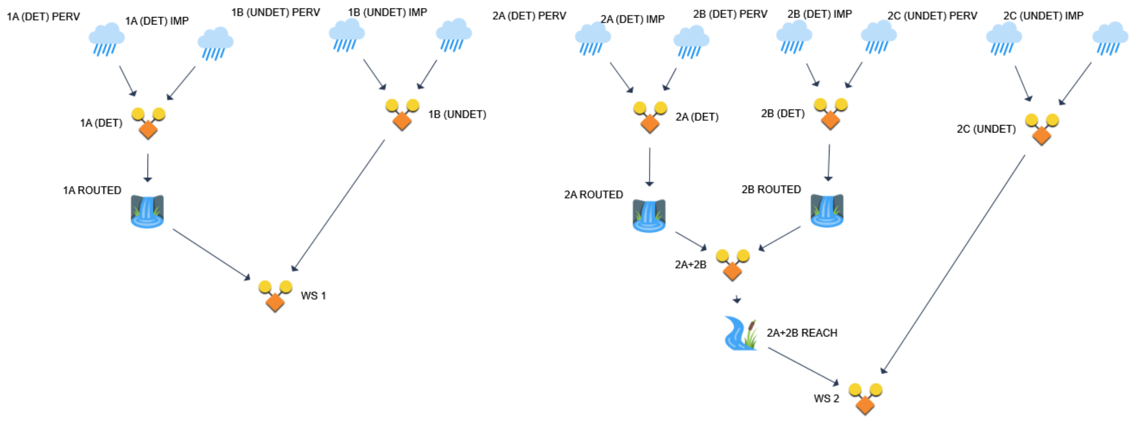
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1B (UNDET) PERV
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2A+2B
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WS 1
WS 2

Hydrograph by Return Period

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Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	1A (DET) PERV		0.491			1.501			4.410
2	NRCS Runoff	1A (DET) IMP		4.479			6.930			12.52
3	Junction	1A (DET)		4.865			8.223			16.45
4	Pond Route	1A ROUTED		2.091			3.160			6.185
5	NRCS Runoff	1B (UNDET) PERV		0.280			2.108			9.742
6	NRCS Runoff	1B (UNDET) IMP		0.358			0.554			1.001
7	Junction	1B (UNDET)		0.379			2.304			10.31
8	Junction	WS 1		2.437			5.463			16.47
9	NRCS Runoff	2A (DET) PERV		0.642			2.085			6.284
10	NRCS Runoff	2A (DET) IMP		4.756			7.359			13.29
11	Junction	2A (DET)		5.207			9.030			18.60
12	Pond Route	2A ROUTED		1.604			2.429			5.223
13	NRCS Runoff	2B (DET) PERV		0.470			1.385			3.956
14	NRCS Runoff	2B (DET) IMP		5.113			7.911			14.29
15	Junction	2B (DET)		5.583			9.295			18.24
16	Pond Route	2B ROUTED		0.938			1.417			2.674
17	Junction	2A+2B		2.530			3.840			7.884
18	Reach	2A+2B REACH		2.480			3.827			7.878
19	NRCS Runoff	2C (UNDET) PERV		1.352			5.592			19.89
20	NRCS Runoff	2C (UNDET) IMP		3.905			6.046			10.92
21	Junction	2C (UNDET)		4.253			9.371			26.71
22	Junction	WS 2		6.213			12.99			34.41

Hydrograph 2-yr Summary

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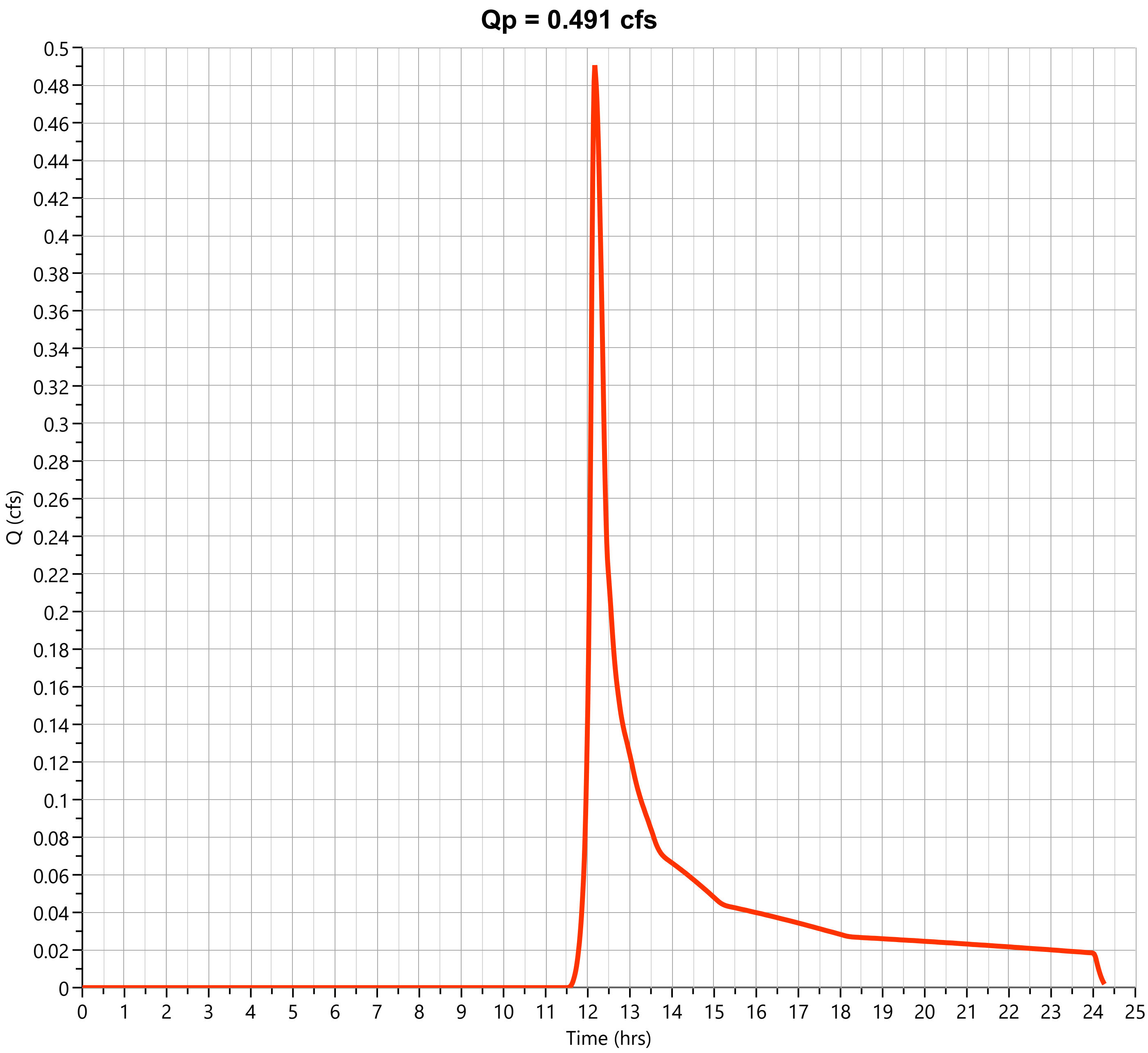
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	1A (DET) PERV	0.491	12.17	2,398	----		
2	NRCS Runoff	1A (DET) IMP	4.479	12.10	15,238	----		
3	Junction	1A (DET)	4.865	12.10	17,635	1, 2		
4	Pond Route	1A ROUTED	2.091	12.22	13,345	3	103.66	7,352
5	NRCS Runoff	1B (UNDET) PERV	0.280	12.73	4,193	----		
6	NRCS Runoff	1B (UNDET) IMP	0.358	12.13	1,483	----		
7	Junction	1B (UNDET)	0.379	12.13	5,676	5, 6		
8	Junction	WS 1	2.437	12.20	19,021	4, 7		
9	NRCS Runoff	2A (DET) PERV	0.642	12.20	3,529	----		
10	NRCS Runoff	2A (DET) IMP	4.756	12.10	16,182	----		
11	Junction	2A (DET)	5.207	12.10	19,711	9, 10		
12	Pond Route	2A ROUTED	1.604	12.35	15,213	11	104.41	8,385
13	NRCS Runoff	2B (DET) PERV	0.470	12.10	1,564	----		
14	NRCS Runoff	2B (DET) IMP	5.113	12.10	17,395	----		
15	Junction	2B (DET)	5.583	12.10	18,959	13, 14		
16	Pond Route	2B ROUTED	0.938	12.55	14,102	15	103.49	10,142
17	Junction	2A+2B	2.530	12.38	29,315	12, 16		
18	Reach	2A+2B REACH	2.480	12.58	29,255	17		
19	NRCS Runoff	2C (UNDET) PERV	1.352	12.87	17,191	----		
20	NRCS Runoff	2C (UNDET) IMP	3.905	12.18	20,411	----		
21	Junction	2C (UNDET)	4.253	12.20	37,603	19, 20		
22	Junction	WS 2	6.213	12.27	66,858	18, 21		

1A (DET) PERV

Hyd. No. 1

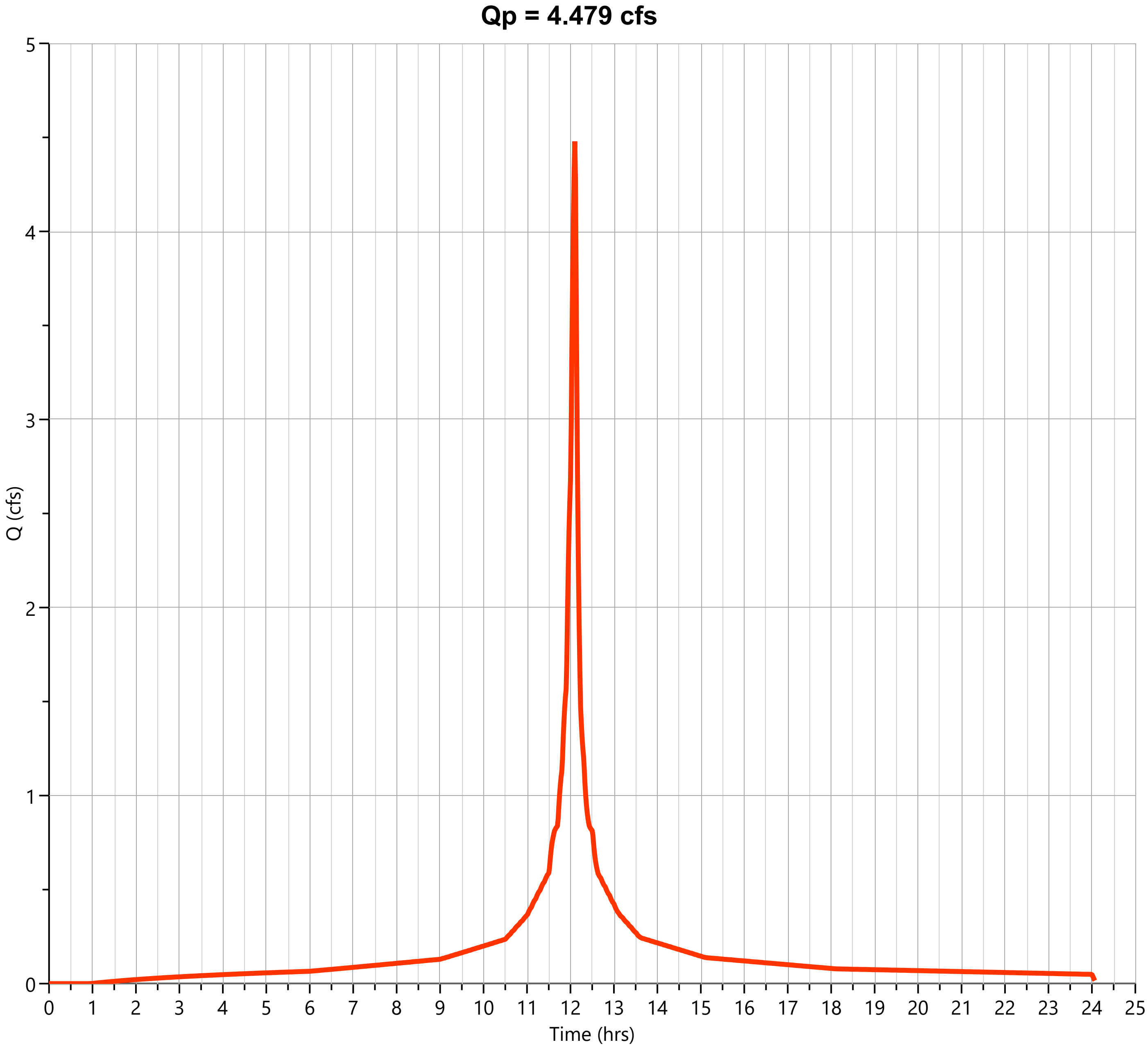
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.491 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 1 min	Runoff Volume	= 2,398 cuft
Drainage Area	= 0.81 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 8.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1A (DET) IMP

Hyd. No. 2

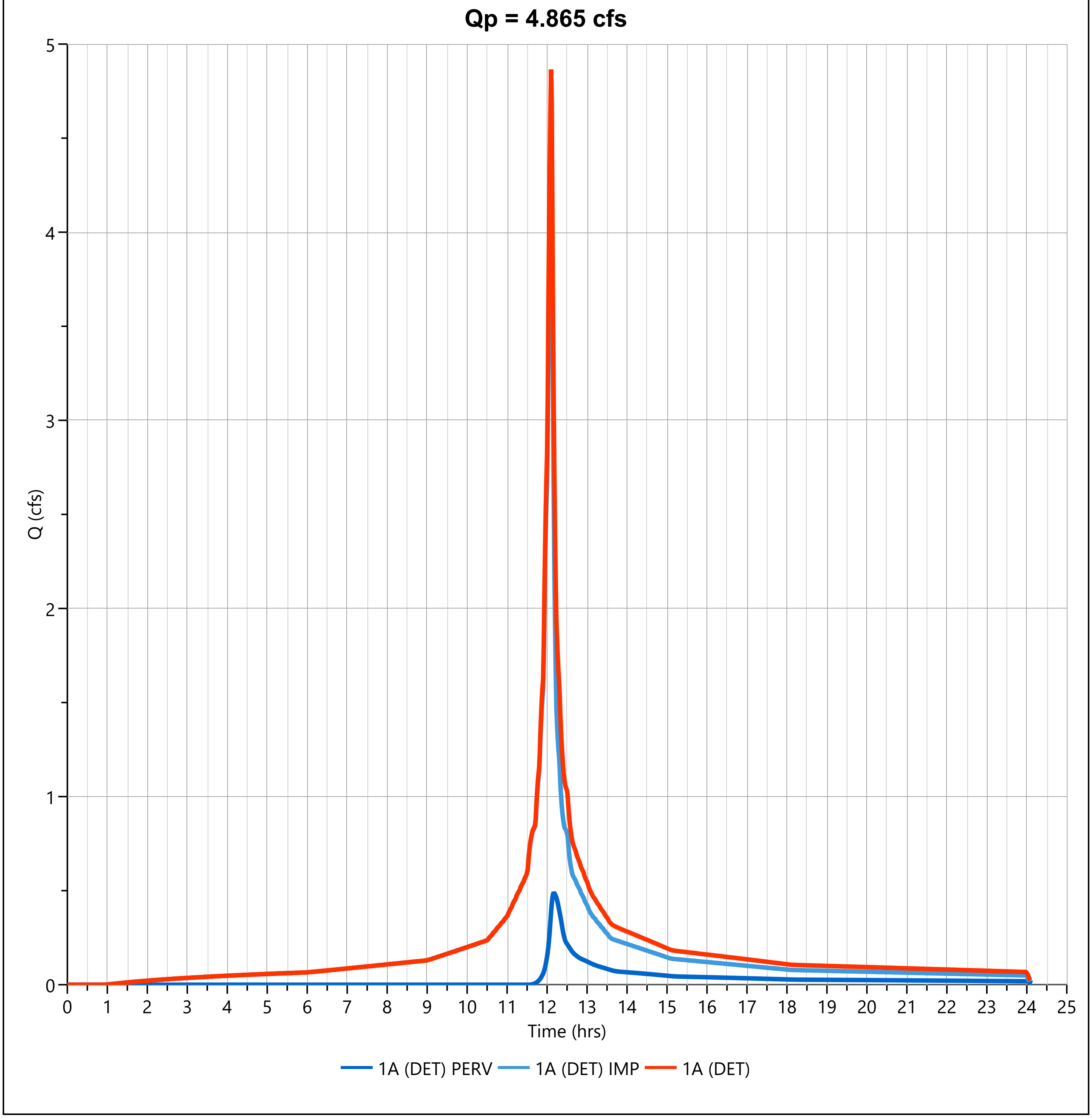
Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.479 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 15,238 cuft
Drainage Area	= 1.13 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1A (DET)

Hyd. No. 3

Hydrograph Type	= Junction	Peak Flow	= 4.865 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 17,635 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.94 ac



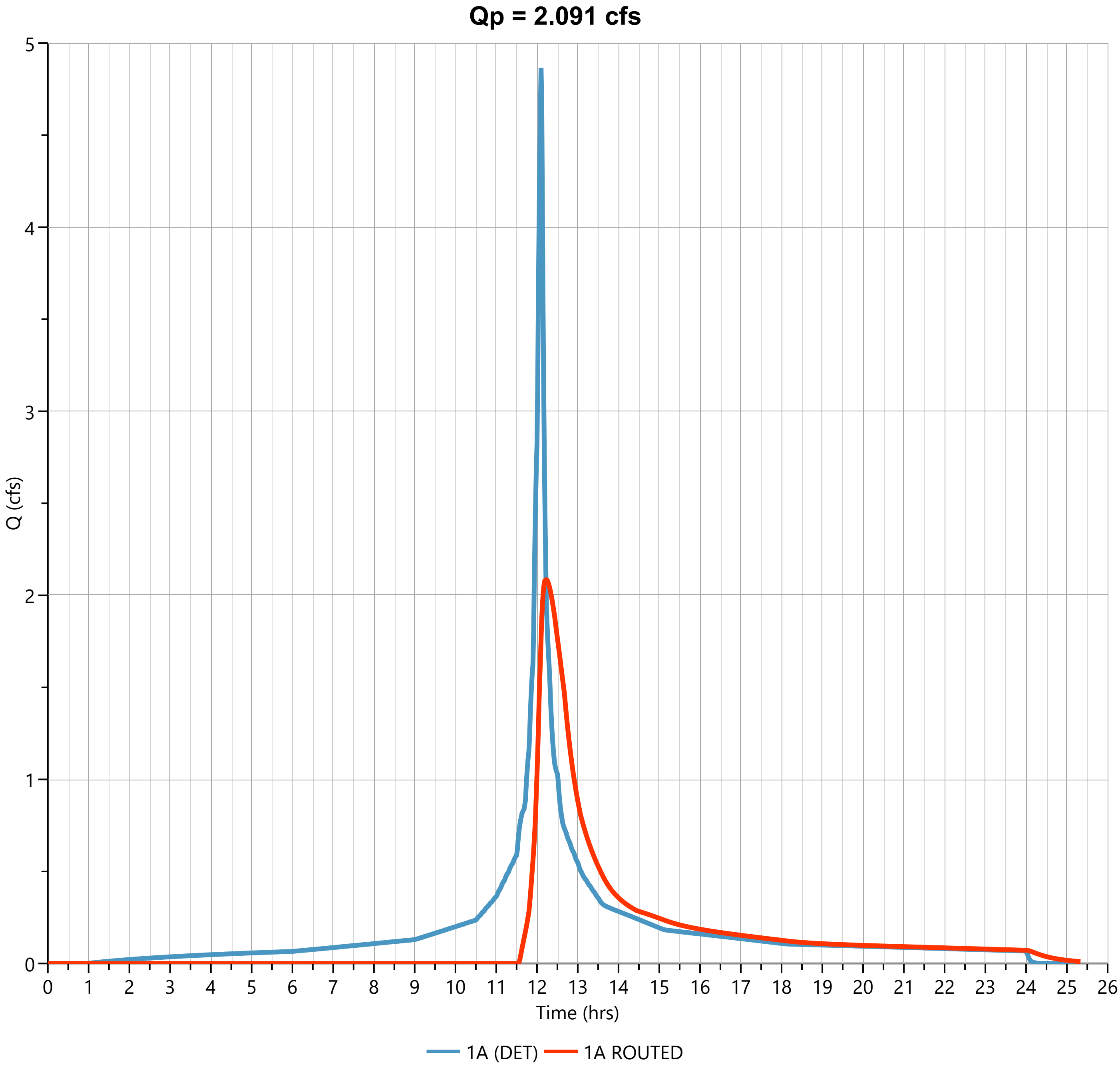
1A ROUTED

Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 2.091 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 13,345 cuft
Inflow Hydrograph	= 3 - 1A (DET)	Max. Elevation	= 103.66 ft
Pond Name	= Basin 2	Max. Storage	= 7,352 cuft

Pond Routing by Storage Indication Method

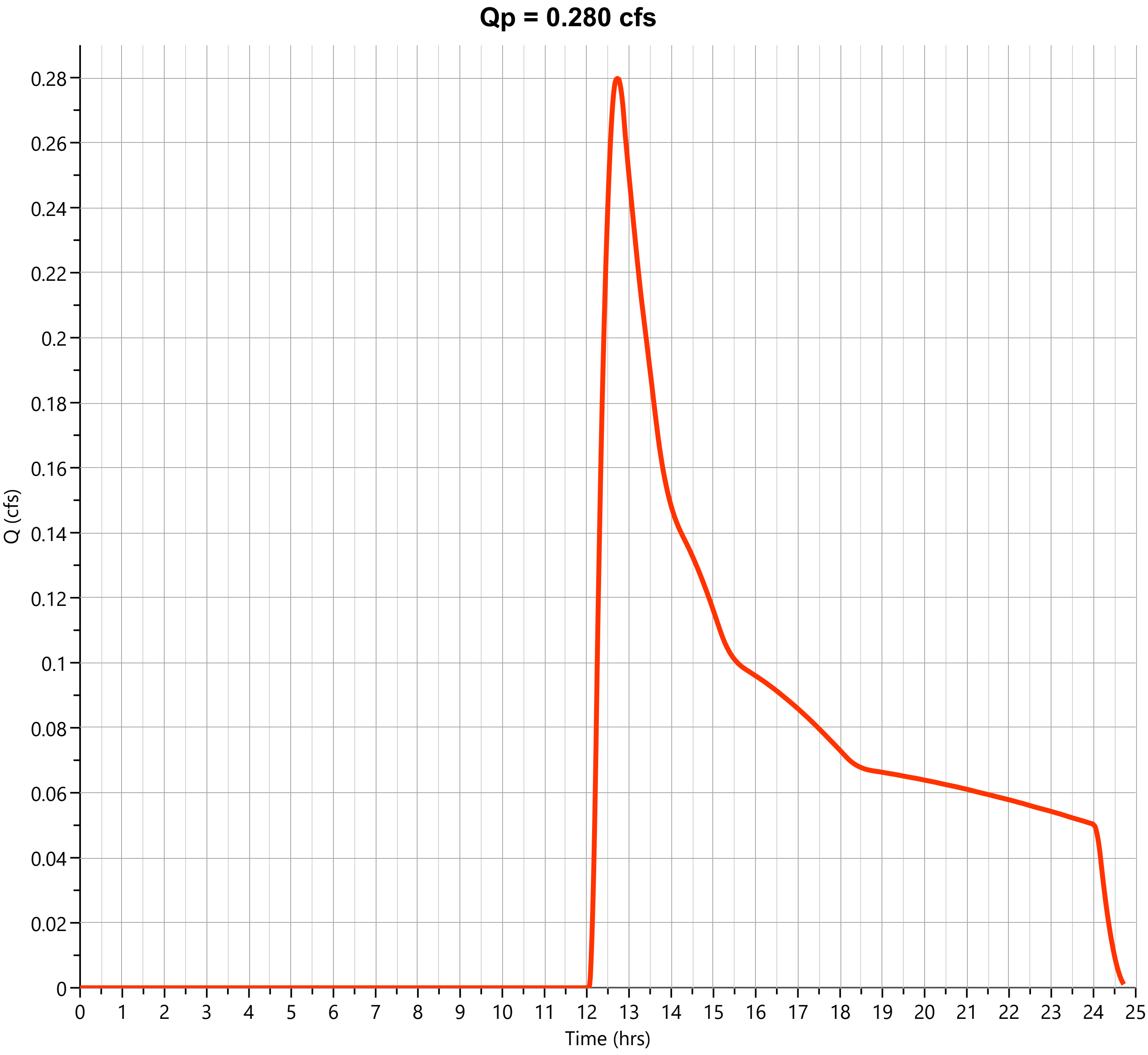
Center of mass detention time = 1.78 hrs



1B (UNDET) PERV

Hyd. No. 5

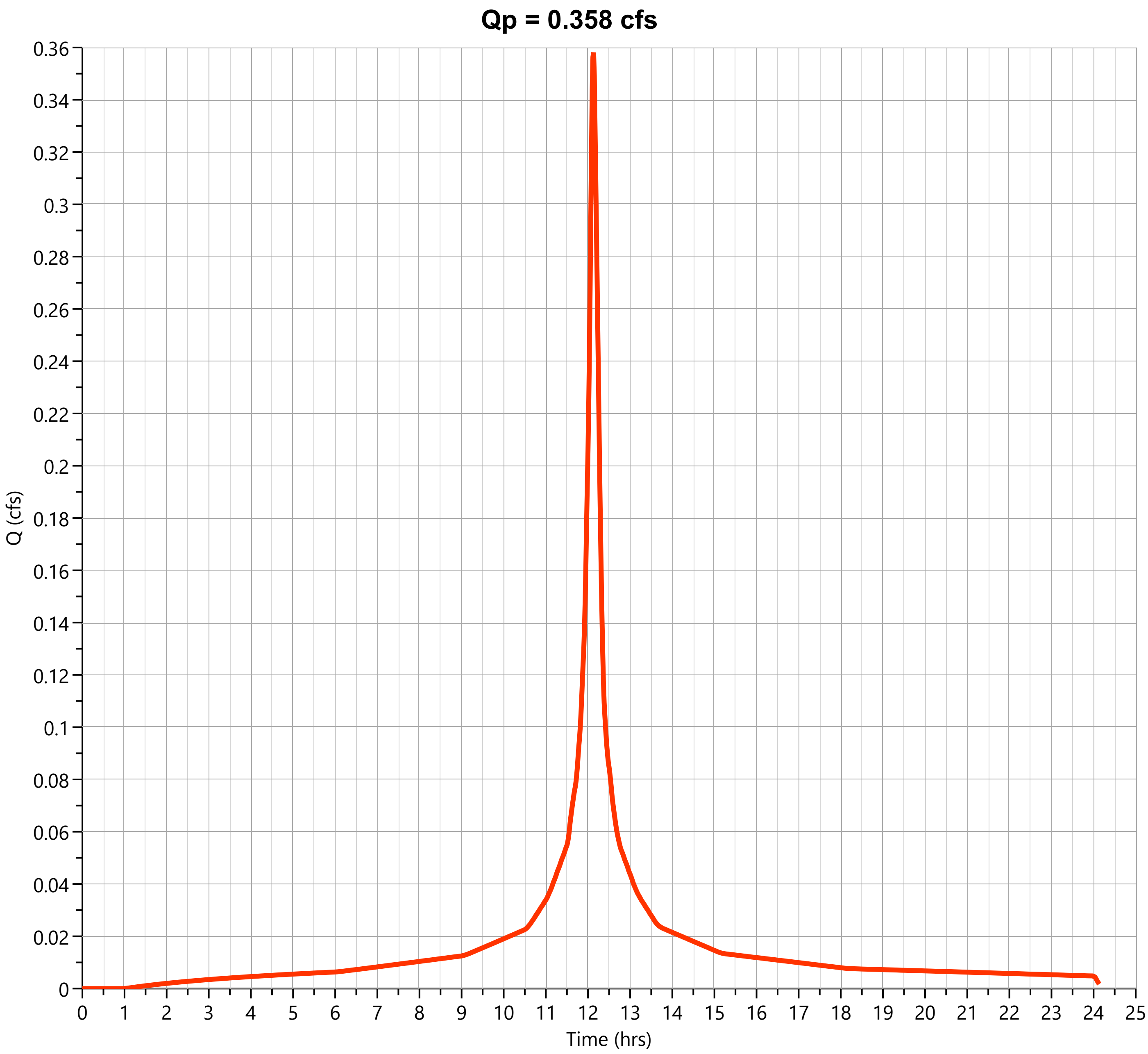
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.280 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.73 hrs
Time Interval	= 1 min	Runoff Volume	= 4,193 cuft
Drainage Area	= 3.92 ac	Curve Number	= 49.00
Tc Method	= User	Time of Conc. (Tc)	= 17.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1B (UNDET) IMP

Hyd. No. 6

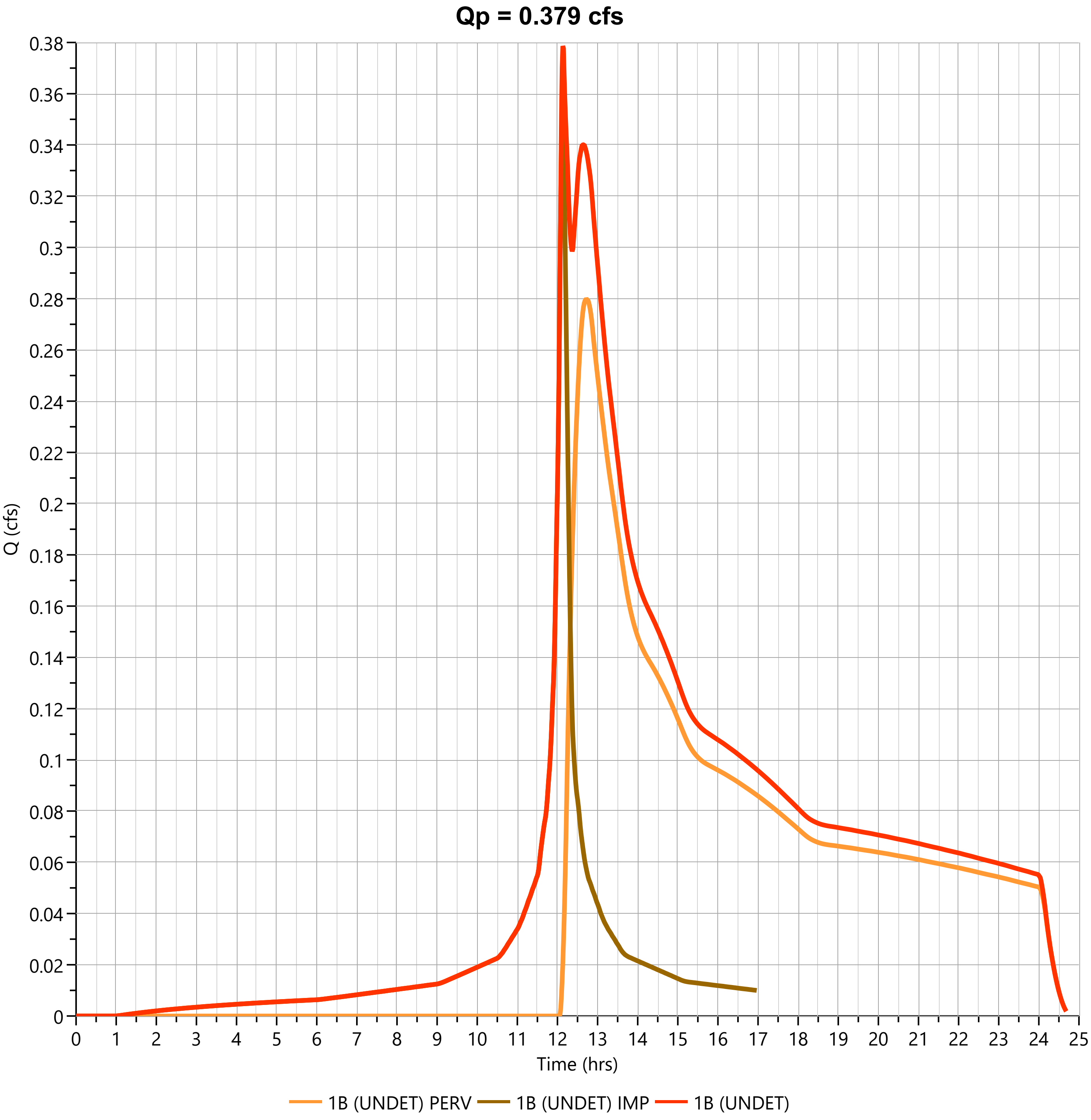
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.358 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Runoff Volume	= 1,483 cuft
Drainage Area	= 0.11 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1B (UNDET)

Hyd. No. 7

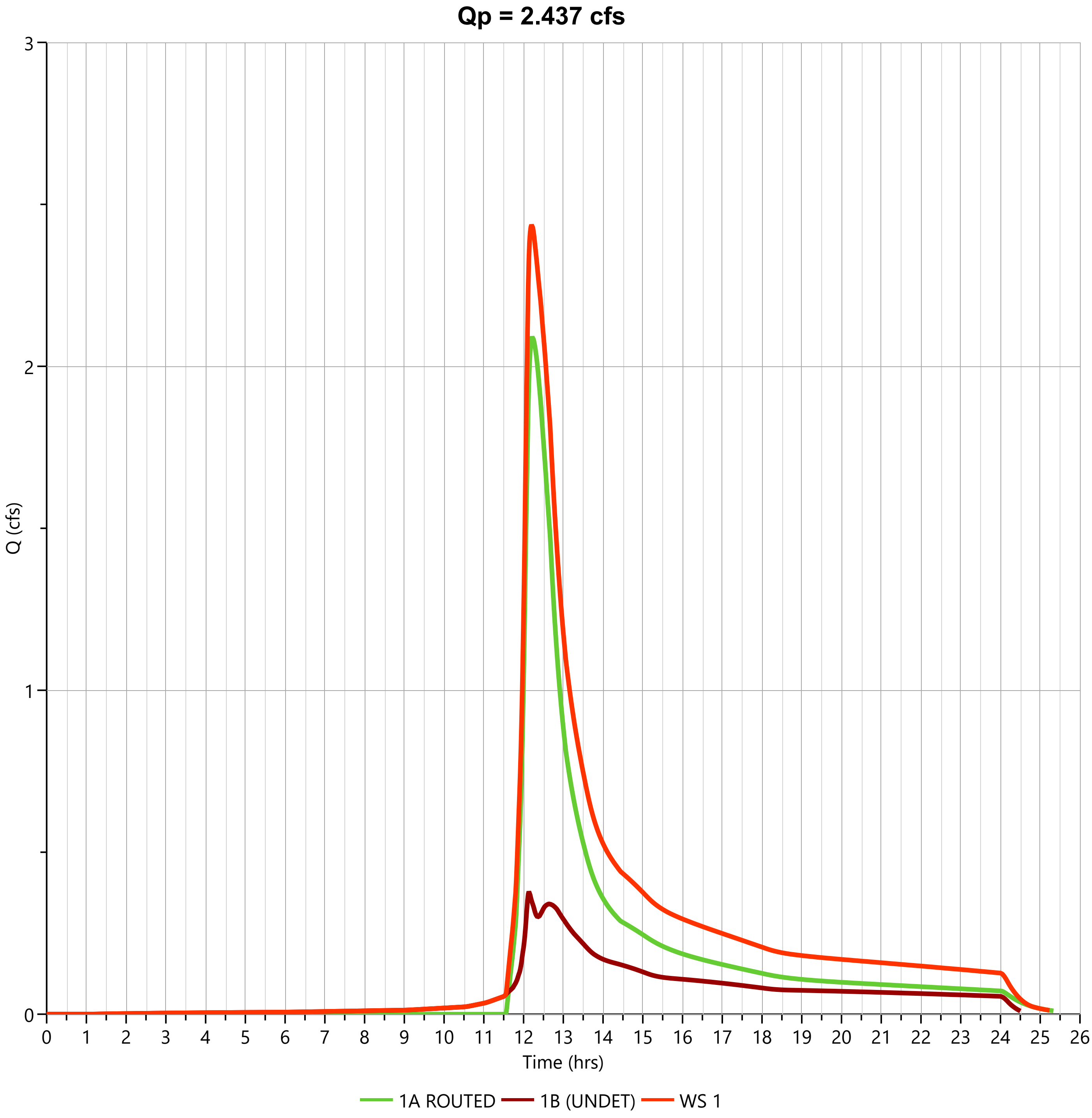
Hydrograph Type	= Junction	Peak Flow	= 0.379 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Hydrograph Volume	= 5,676 cuft
Inflow Hydrographs	= 5, 6	Total Contrib. Area	= 4.03 ac



WS 1

Hyd. No. 8

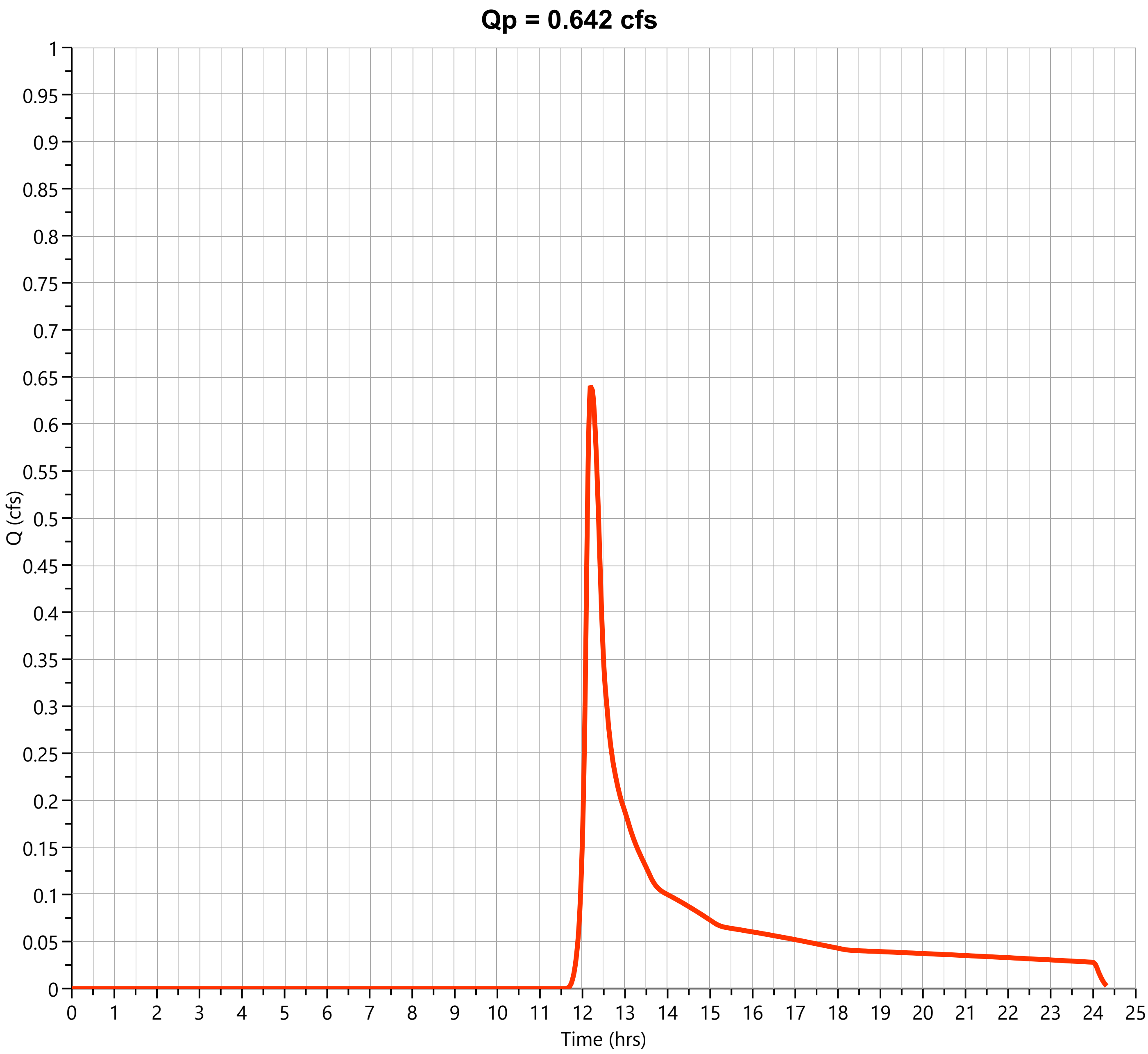
Hydrograph Type	= Junction	Peak Flow	= 2.437 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.20 hrs
Time Interval	= 1 min	Hydrograph Volume	= 19,021 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



2A (DET) PERV

Hyd. No. 9

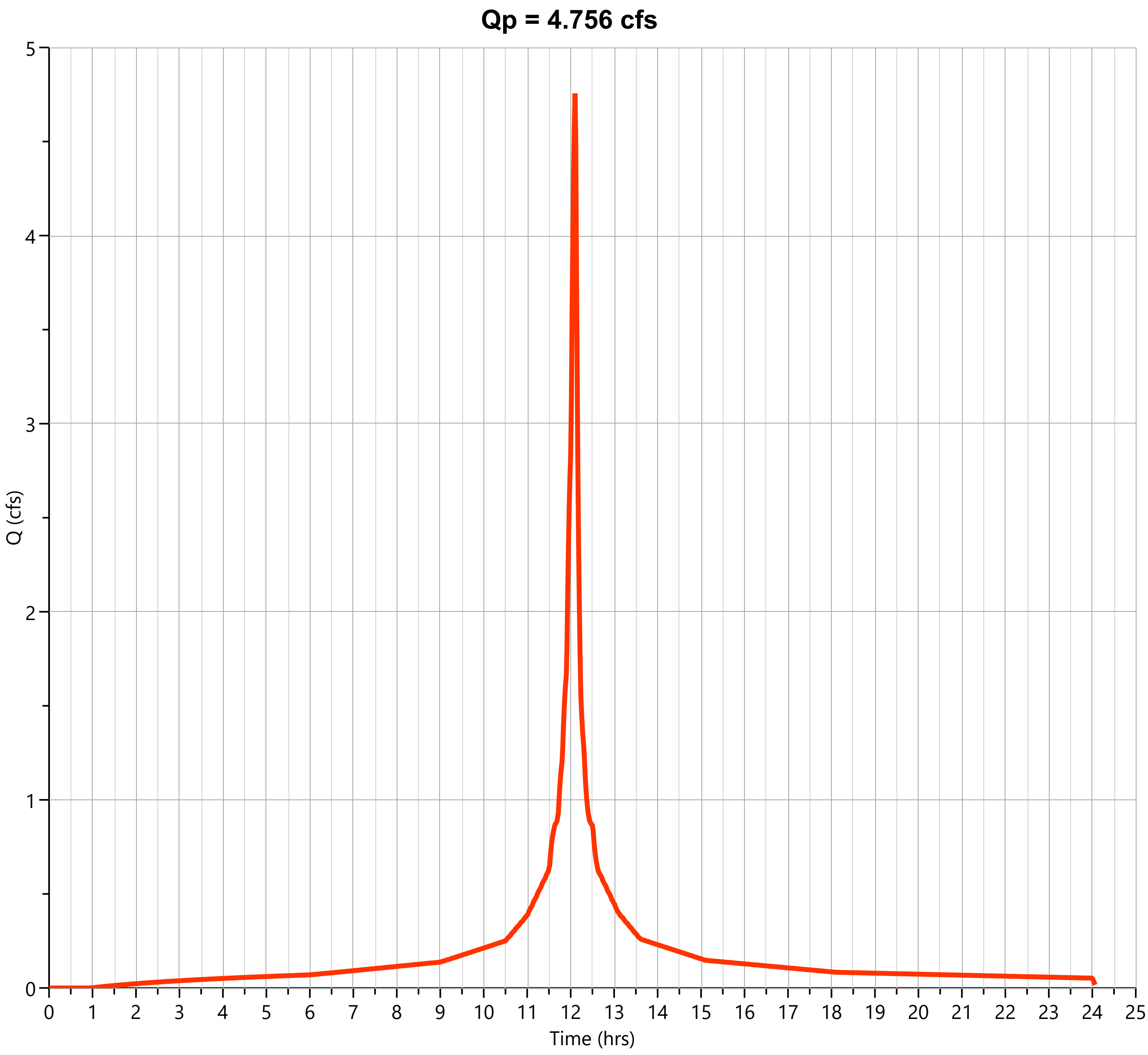
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.642 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.20 hrs
Time Interval	= 1 min	Runoff Volume	= 3,529 cuft
Drainage Area	= 1.3 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 9.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2A (DET) IMP

Hyd. No. 10

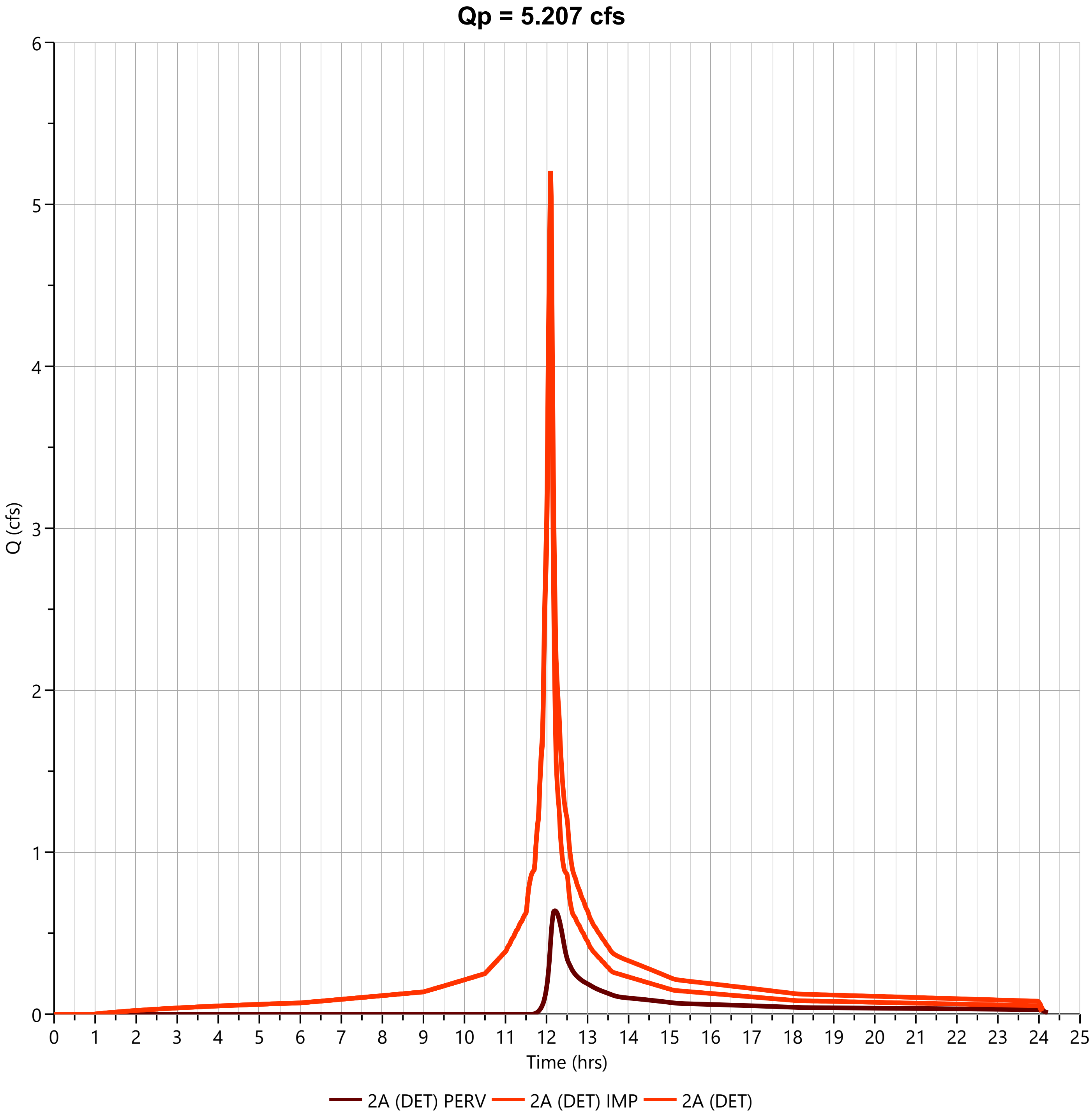
Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.756 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 16,182 cuft
Drainage Area	= 1.2 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2A (DET)

Hyd. No. 11

Hydrograph Type	= Junction	Peak Flow	= 5.207 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 19,711 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 2.5 ac



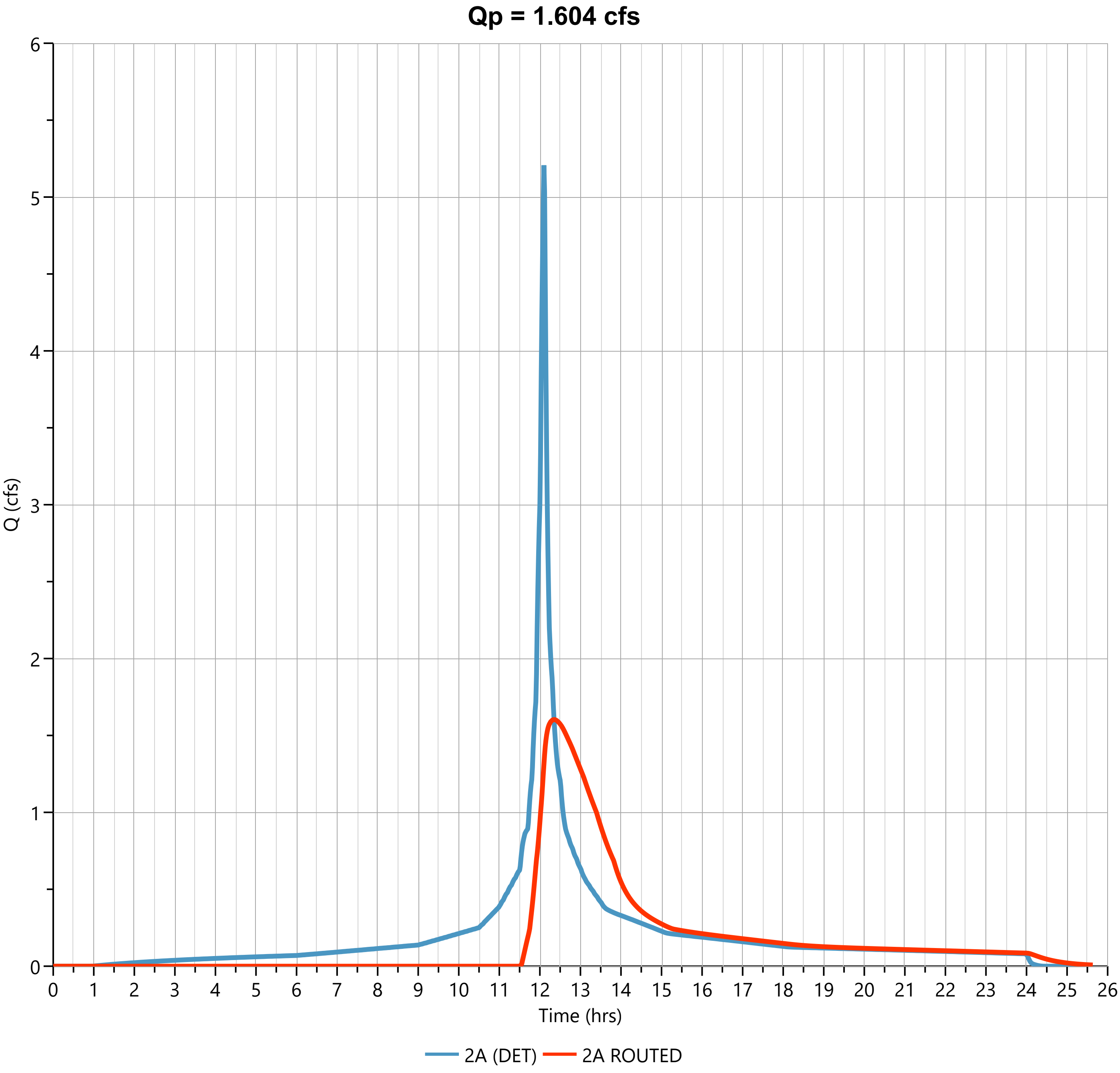
2A ROUTED

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 1.604 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.35 hrs
Time Interval	= 1 min	Hydrograph Volume	= 15,213 cuft
Inflow Hydrograph	= 11 - 2A (DET)	Max. Elevation	= 104.41 ft
Pond Name	= Basin 1	Max. Storage	= 8,385 cuft

Pond Routing by Storage Indication Method

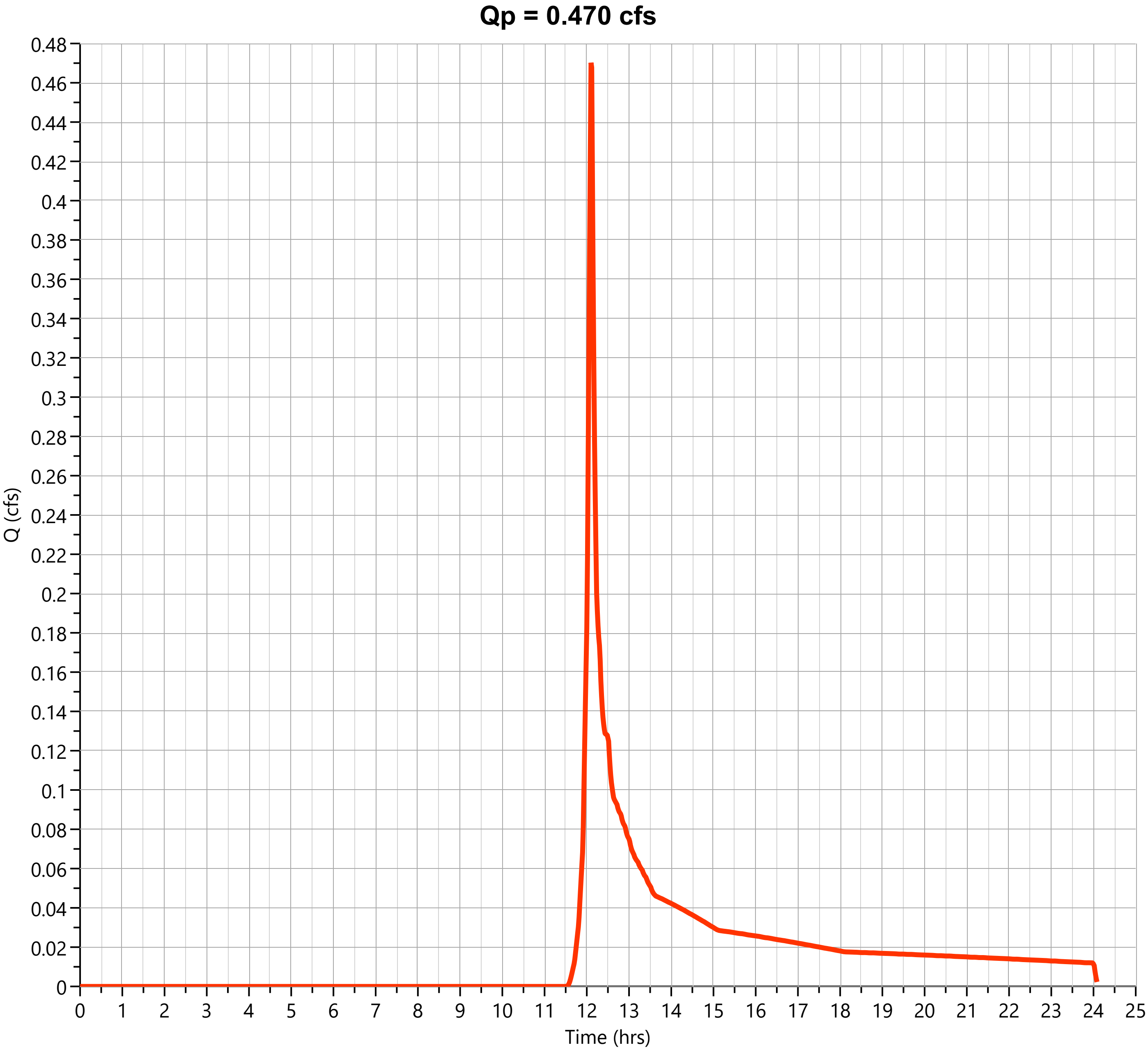
Center of mass detention time = 1.83 hrs



2B (DET) PERV

Hyd. No. 13

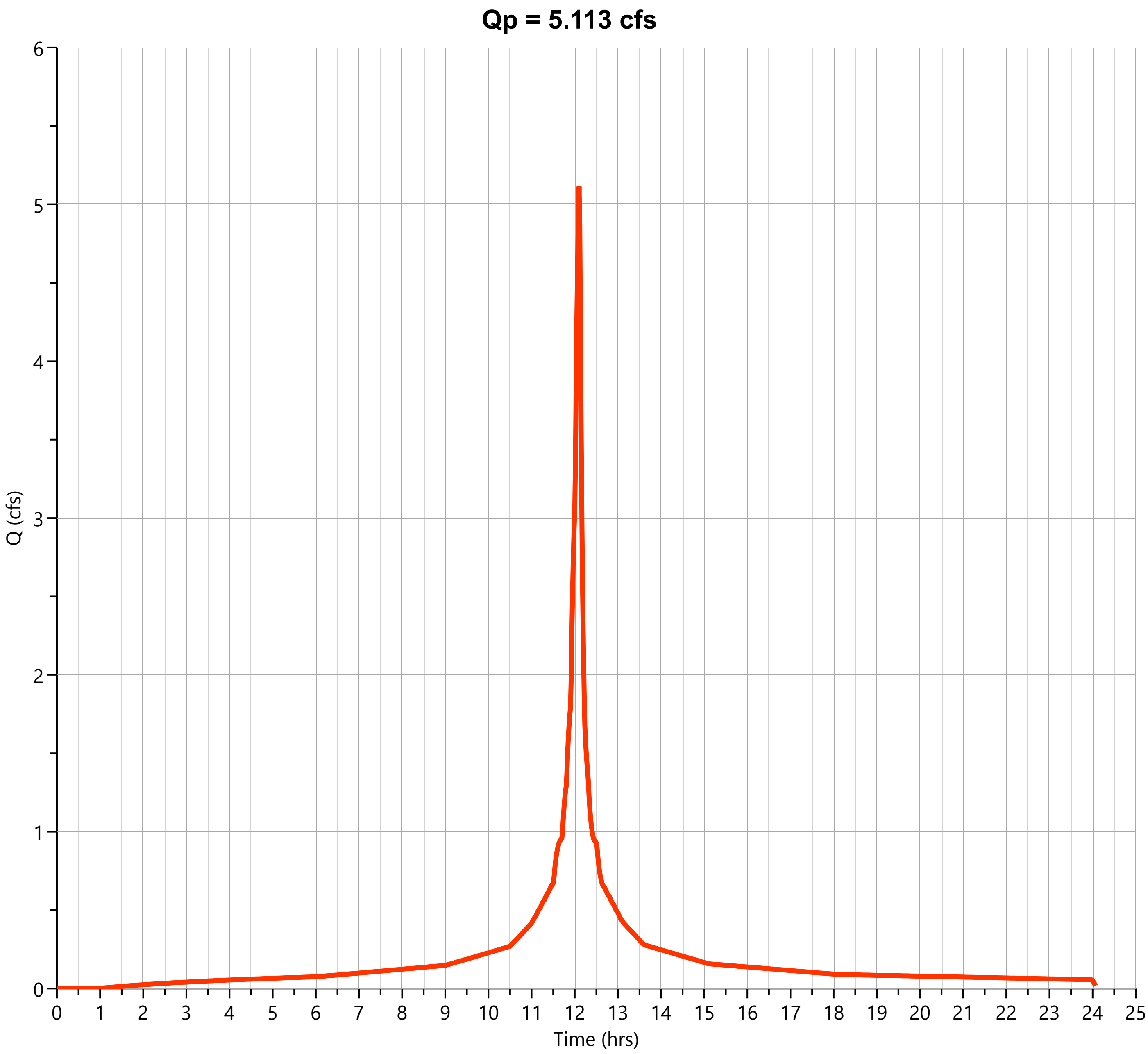
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.470 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 1,564 cuft
Drainage Area	= 0.54 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 2.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2B (DET) IMP

Hyd. No. 14

Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.113 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 17,395 cuft
Drainage Area	= 1.29 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



Hydrograph Report

Hydrology Studio v 3.0.0.44

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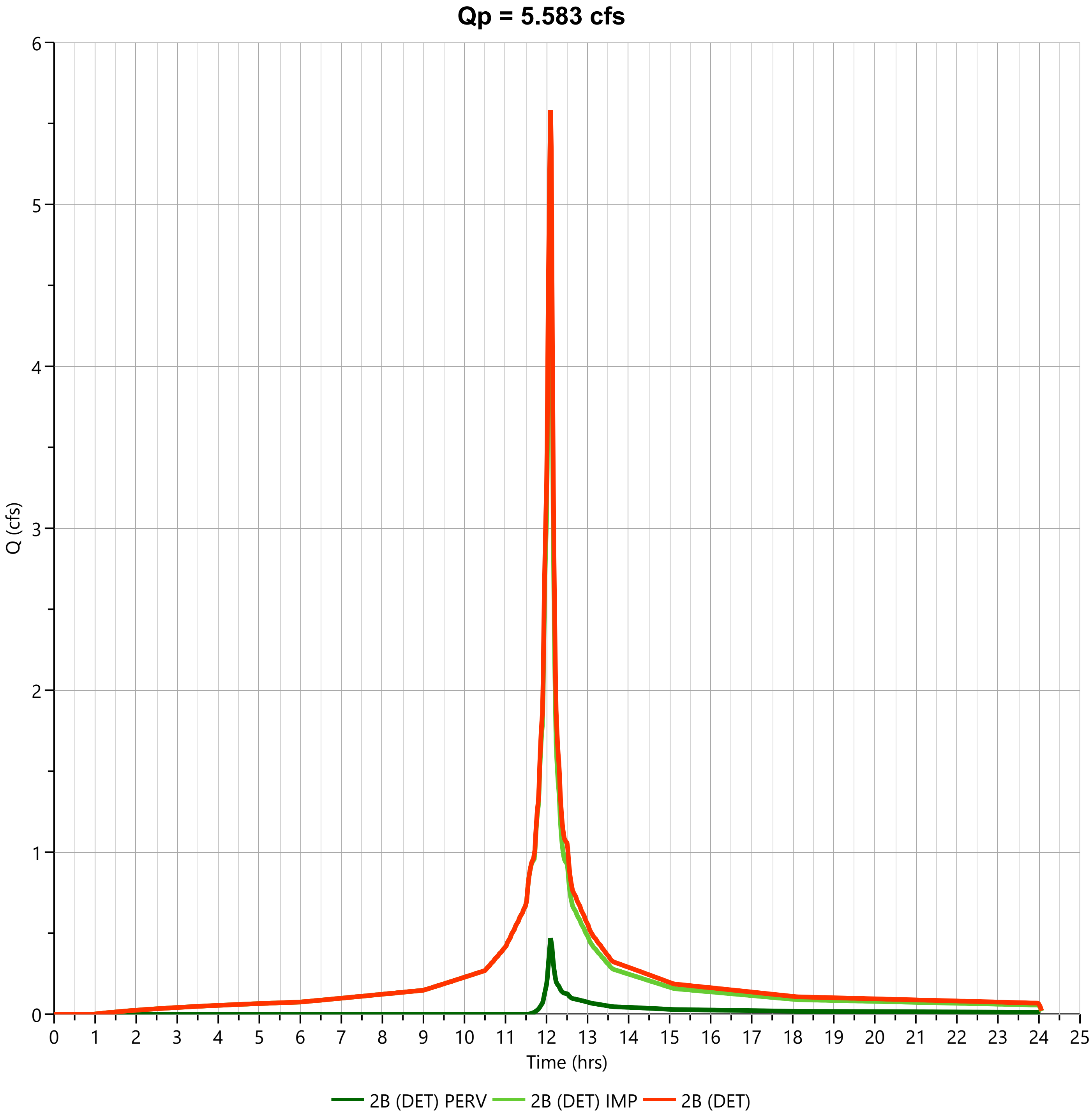
07-23-2026

2B (DET)

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 5.583 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 18,959 cuft
Inflow Hydrographs	= 13, 14	Total Contrib. Area	= 1.83 ac



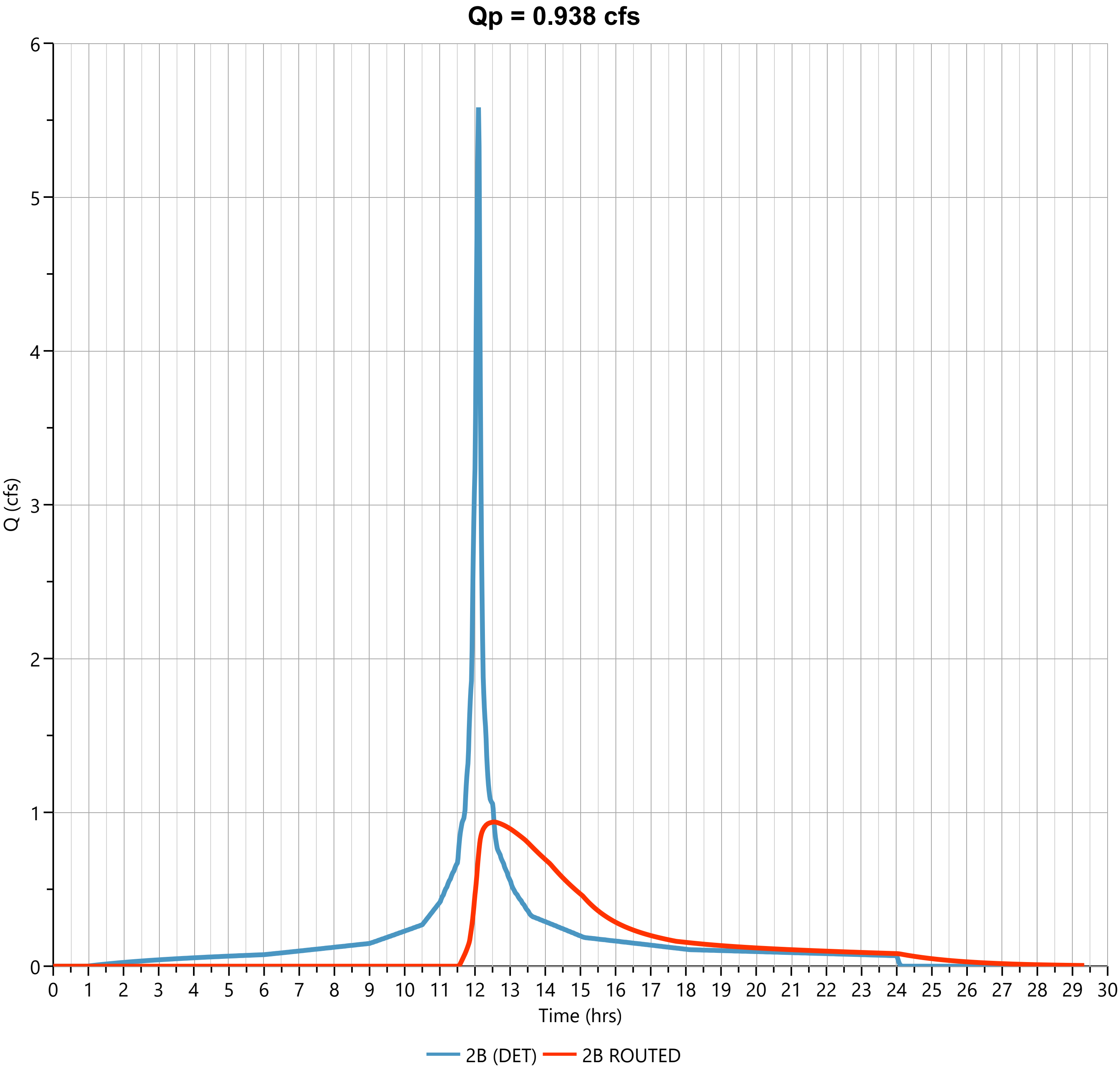
2B ROUTED

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.938 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.55 hrs
Time Interval	= 1 min	Hydrograph Volume	= 14,102 cuft
Inflow Hydrograph	= 15 - 2B (DET)	Max. Elevation	= 103.49 ft
Pond Name	= Basin 3	Max. Storage	= 10,142 cuft

Pond Routing by Storage Indication Method

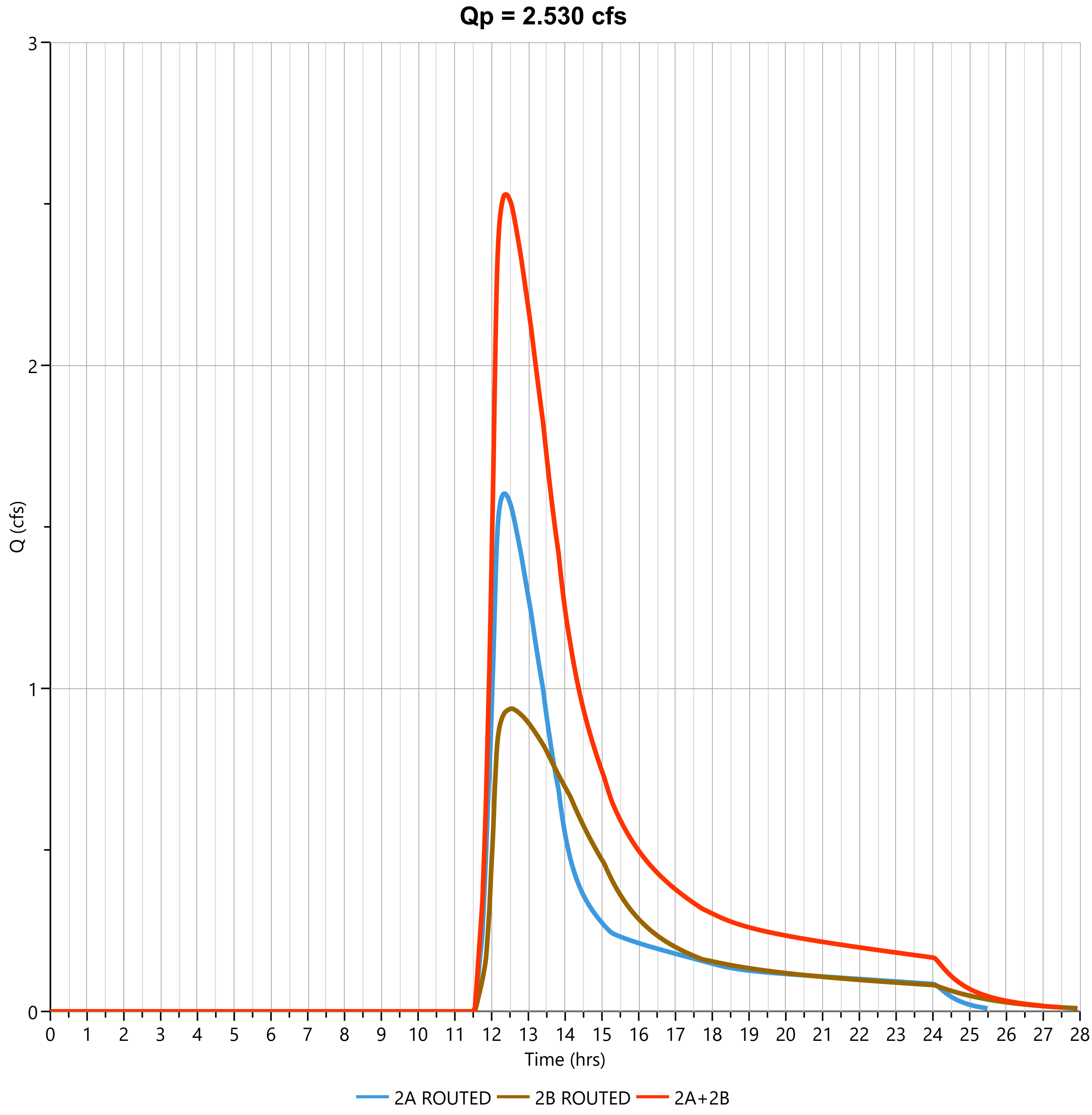
Center of mass detention time = 2.85 hrs



2A+2B

Hyd. No. 17

Hydrograph Type	= Junction	Peak Flow	= 2.530 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.38 hrs
Time Interval	= 1 min	Hydrograph Volume	= 29,315 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac

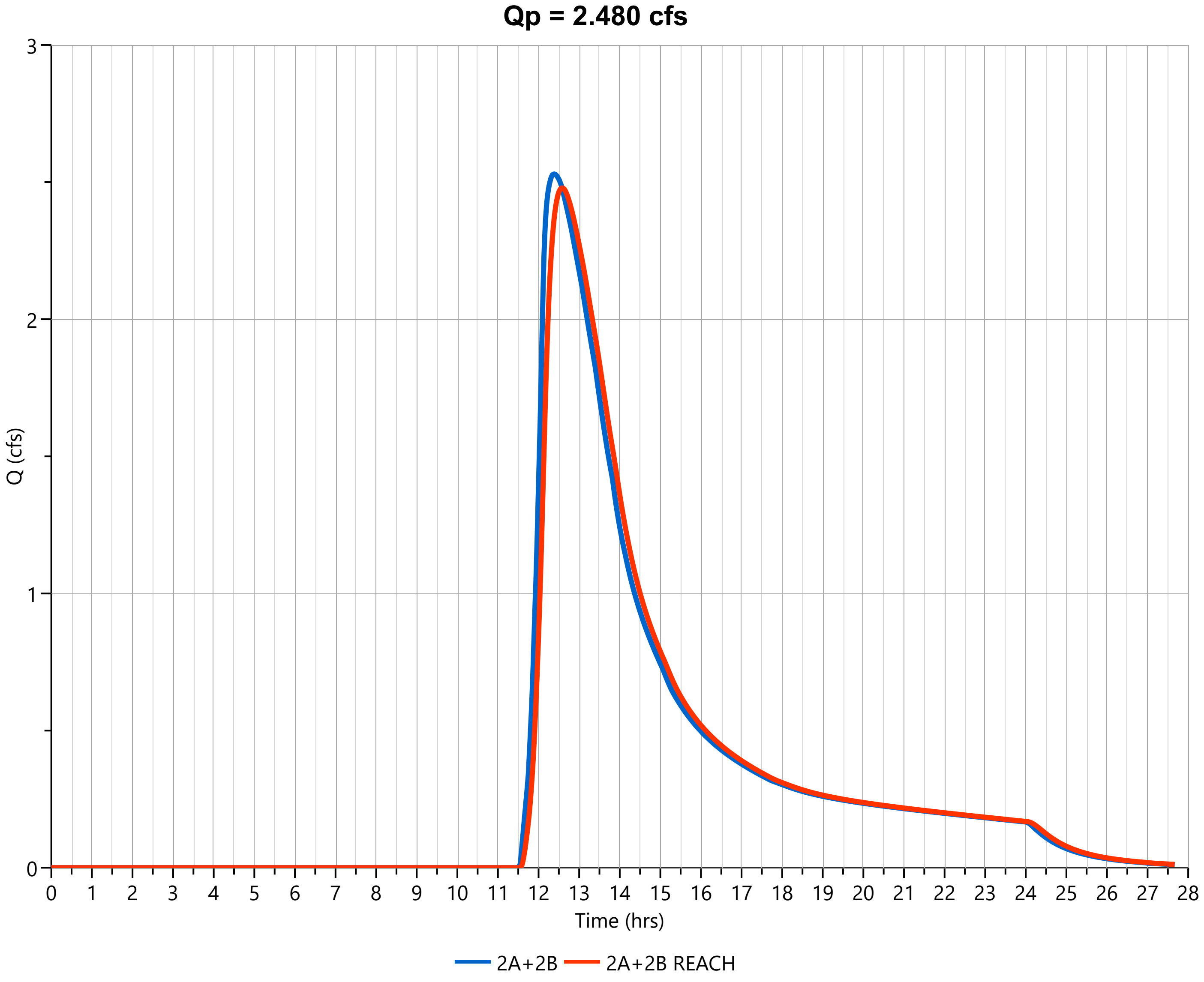


2A+2B REACH

Hyd. No. 18

Hydrograph Type	= Reach	Peak Flow	= 2.480 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.58 hrs
Time Interval	= 1 min	Hydrograph Volume	= 29,255 cuft
Inflow Hydrograph	= 17 - 2A+2B	Section Type	= Circular
Reach Length	= 435 ft	Channel Slope	= 0.50 %
Manning's n	= 0.012	Pipe Diameter	= 2.00 ft
Side Slope (h:v)	= n/a	Maximum Depth	= n/a
Rating Curve X	= 5.318	Average Velocity	= 0.81 ft/s
Rating Curve m	= 1.250	Routing Coeff.	= 0.1299

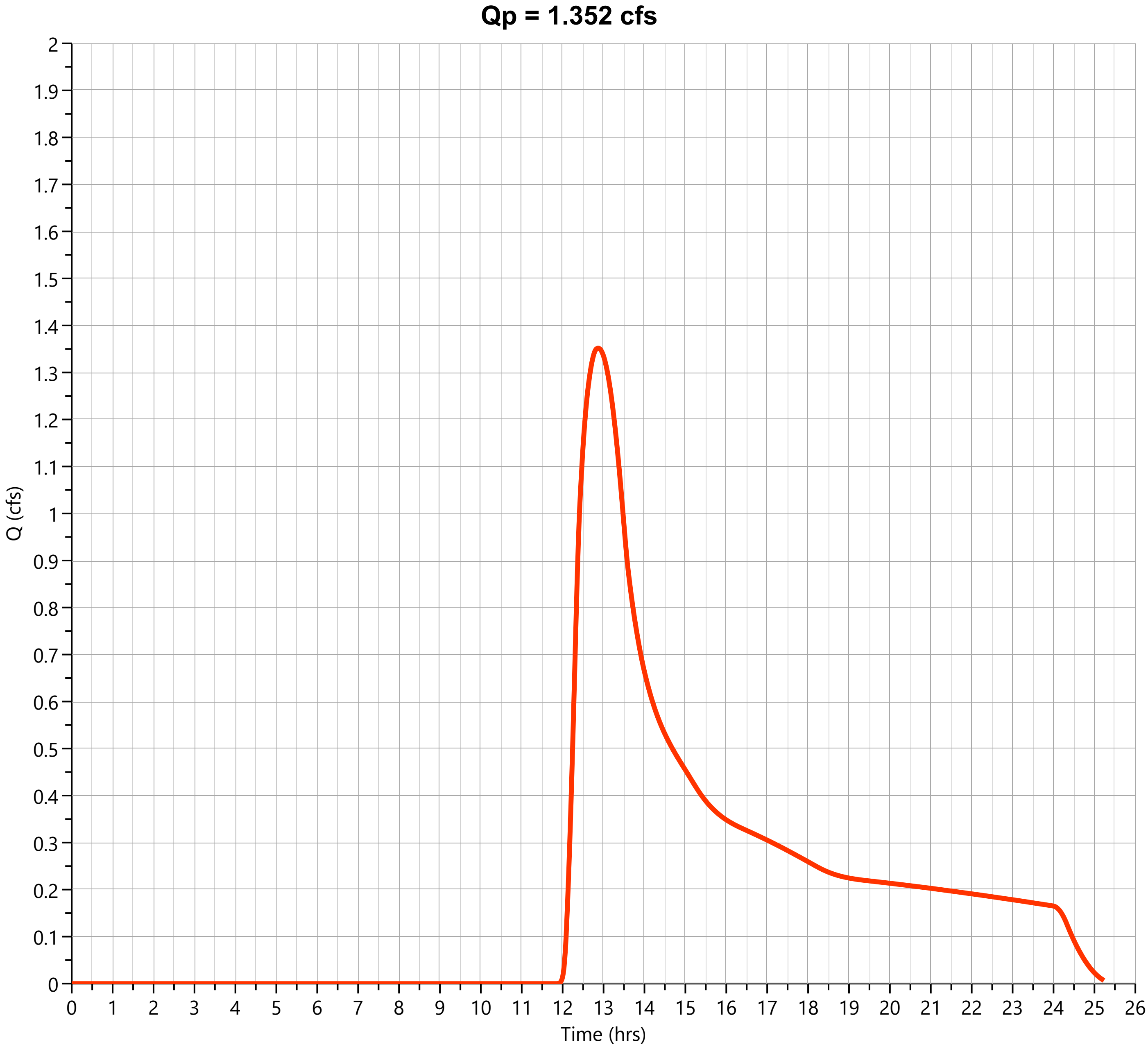
Modified Att-Kin routing method



2C (UNDET) PERV

Hyd. No. 19

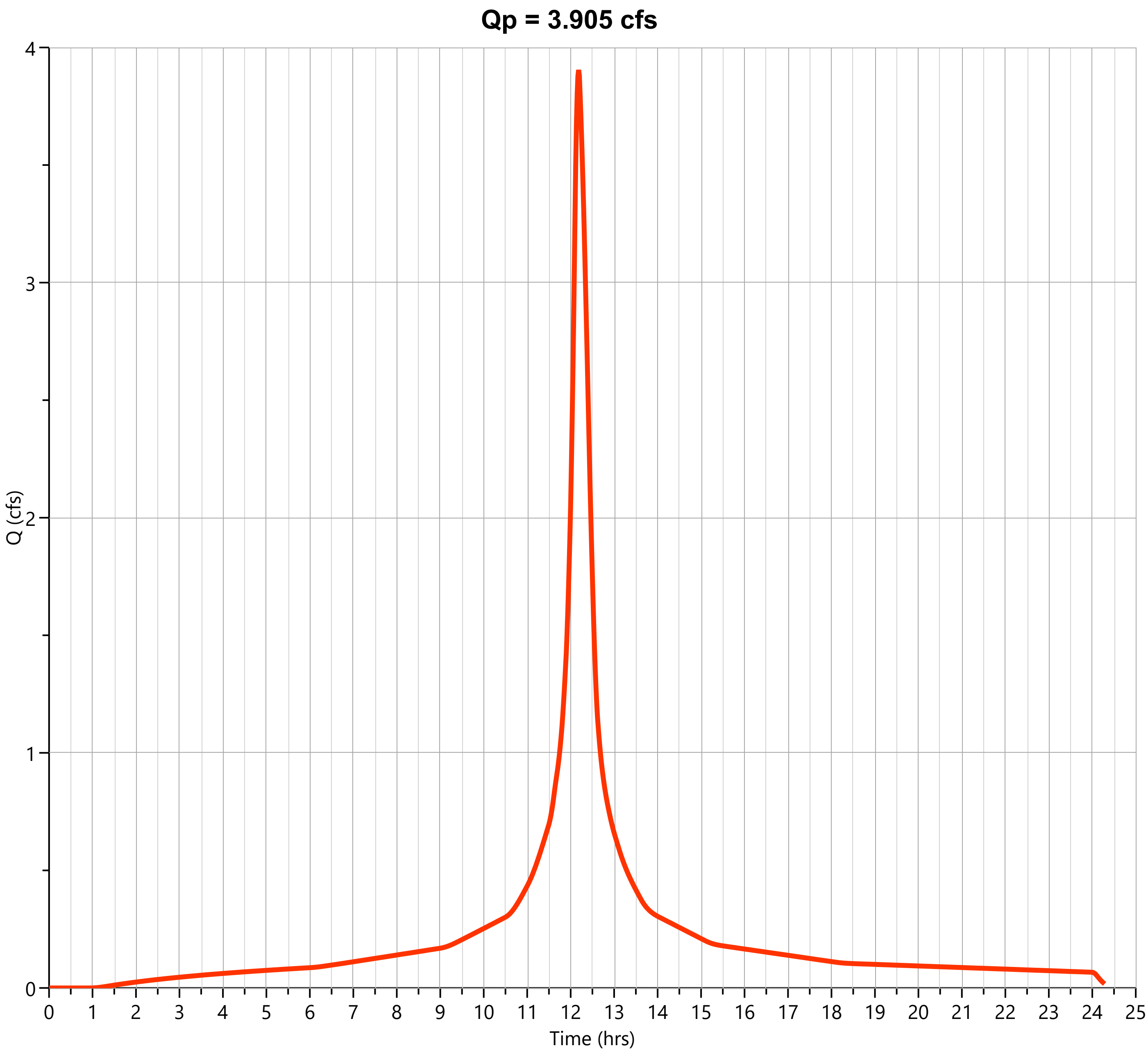
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.352 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.87 hrs
Time Interval	= 1 min	Runoff Volume	= 17,191 cuft
Drainage Area	= 9.02 ac	Curve Number	= 55.00
Tc Method	= User	Time of Conc. (Tc)	= 33.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2C (UNDET) IMP

Hyd. No. 20

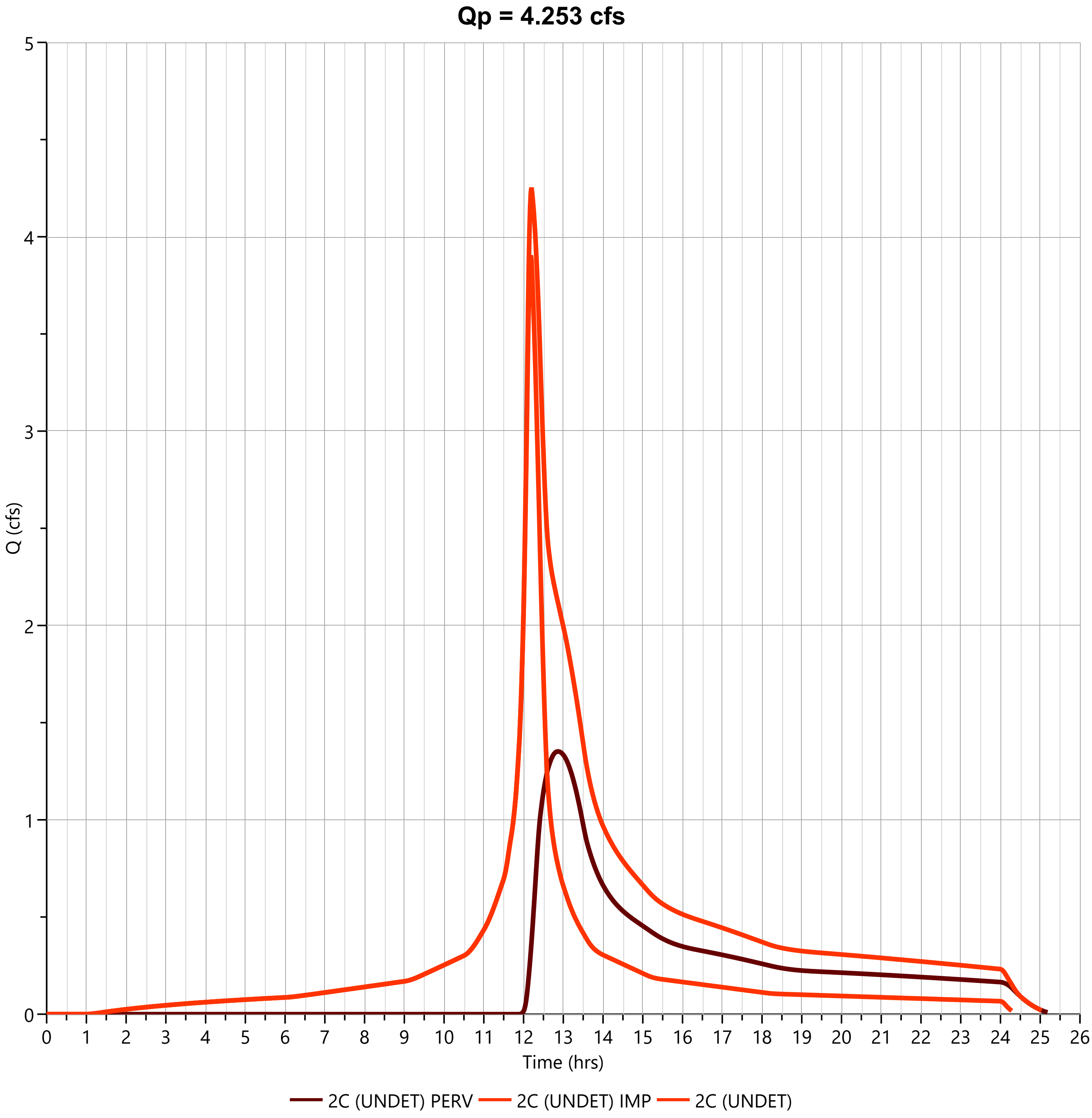
Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.905 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 20,411 cuft
Drainage Area	= 1.49 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 3.99 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2C (UNDET)

Hyd. No. 21

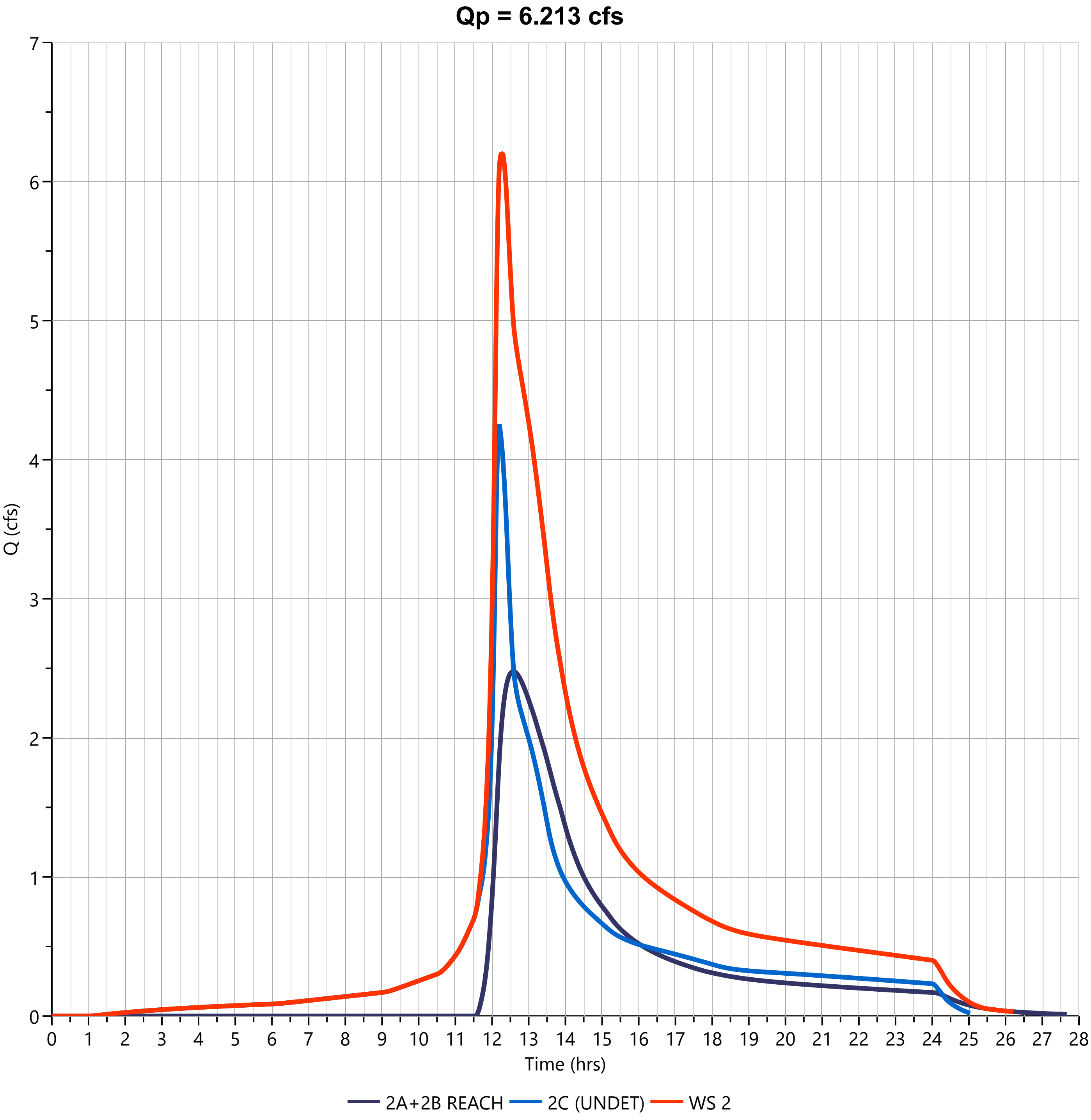
Hydrograph Type	= Junction	Peak Flow	= 4.253 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.20 hrs
Time Interval	= 1 min	Hydrograph Volume	= 37,603 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 10.51 ac



WS 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 6.213 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.27 hrs
Time Interval	= 1 min	Hydrograph Volume	= 66,858 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



Hydrograph 10-yr Summary

Hydrology Studio v 3.0.0.44

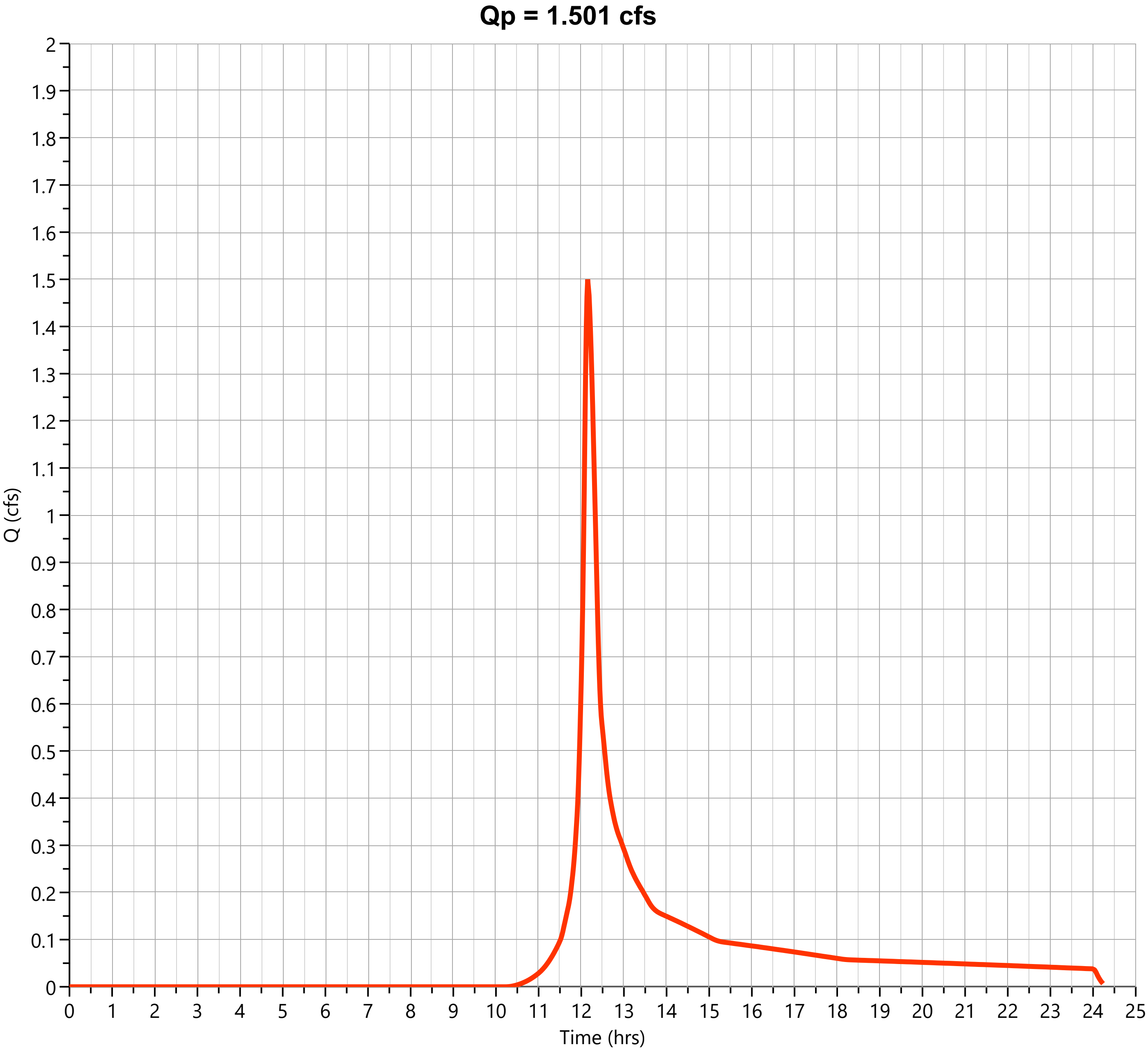
File: 102054601 - Proposed.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	1A (DET) PERV	1.501	12.17	6,250	----		
2	NRCS Runoff	1A (DET) IMP	6.930	12.10	23,972	----		
3	Junction	1A (DET)	8.223	12.10	30,222	1, 2		
4	Pond Route	1A ROUTED	3.160	12.28	25,932	3	104.06	10,076
5	NRCS Runoff	1B (UNDET) PERV	2.108	12.38	16,206	----		
6	NRCS Runoff	1B (UNDET) IMP	0.554	12.13	2,334	----		
7	Junction	1B (UNDET)	2.304	12.30	18,540	5, 6		
8	Junction	WS 1	5.463	12.28	44,472	4, 7		
9	NRCS Runoff	2A (DET) PERV	2.085	12.18	9,411	----		
10	NRCS Runoff	2A (DET) IMP	7.359	12.10	25,457	----		
11	Junction	2A (DET)	9.030	12.10	34,868	9, 10		
12	Pond Route	2A ROUTED	2.429	12.45	30,370	11	105.06	12,872
13	NRCS Runoff	2B (DET) PERV	1.385	12.10	4,076	----		
14	NRCS Runoff	2B (DET) IMP	7.911	12.10	27,367	----		
15	Junction	2B (DET)	9.295	12.10	31,443	13, 14		
16	Pond Route	2B ROUTED	1.417	12.57	26,586	15	103.99	15,493
17	Junction	2A+2B	3.840	12.50	56,956	12, 16		
18	Reach	2A+2B REACH	3.827	12.60	56,895	17		
19	NRCS Runoff	2C (UNDET) PERV	5.592	12.62	52,422	----		
20	NRCS Runoff	2C (UNDET) IMP	6.046	12.18	32,111	----		
21	Junction	2C (UNDET)	9.371	12.30	84,533	19, 20		
22	Junction	WS 2	12.99	12.33	141,429	18, 21		

1A (DET) PERV

Hyd. No. 1

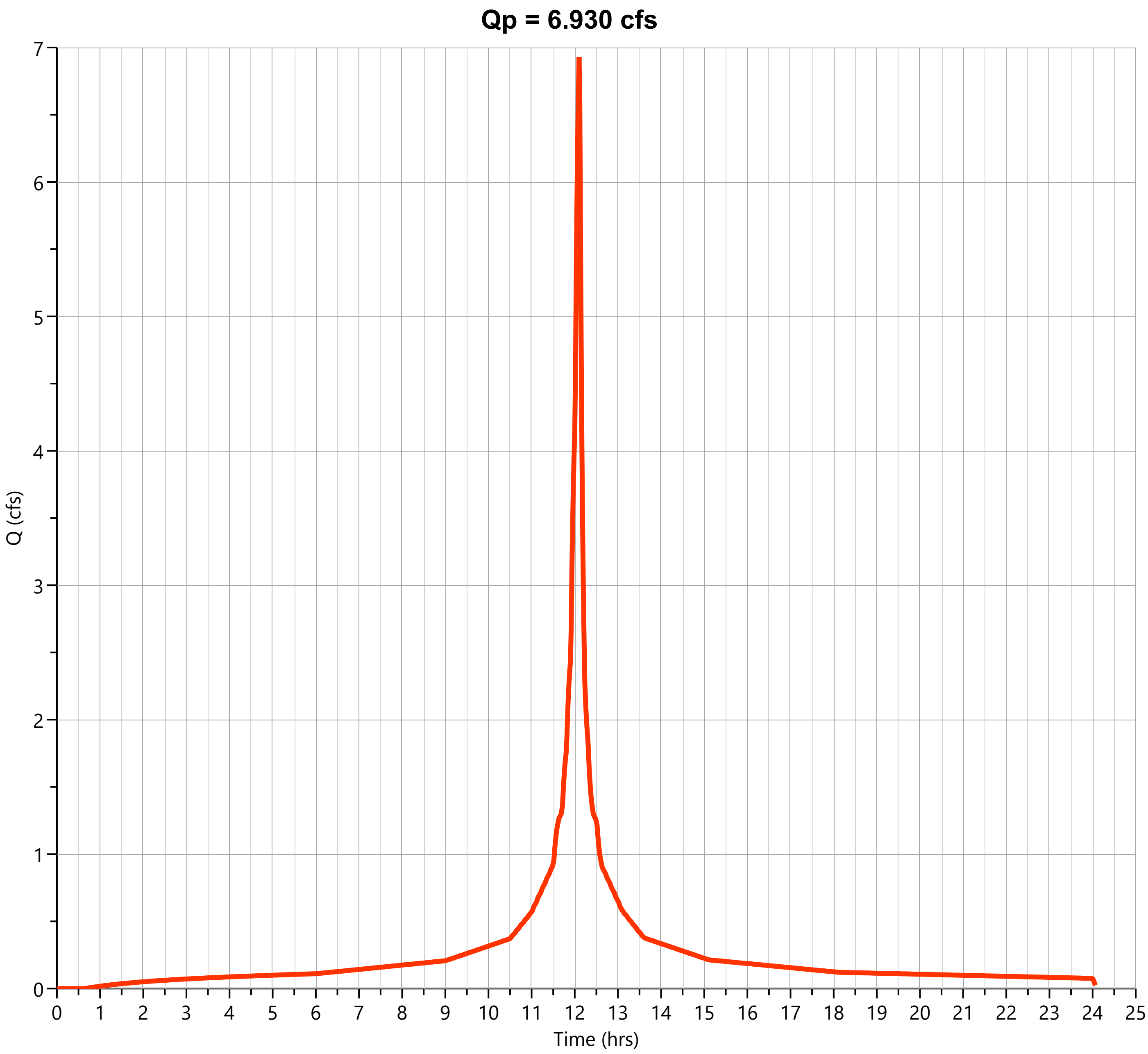
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.501 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 1 min	Runoff Volume	= 6,250 cuft
Drainage Area	= 0.81 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 8.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1A (DET) IMP

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 6.930 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 23,972 cuft
Drainage Area	= 1.13 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284

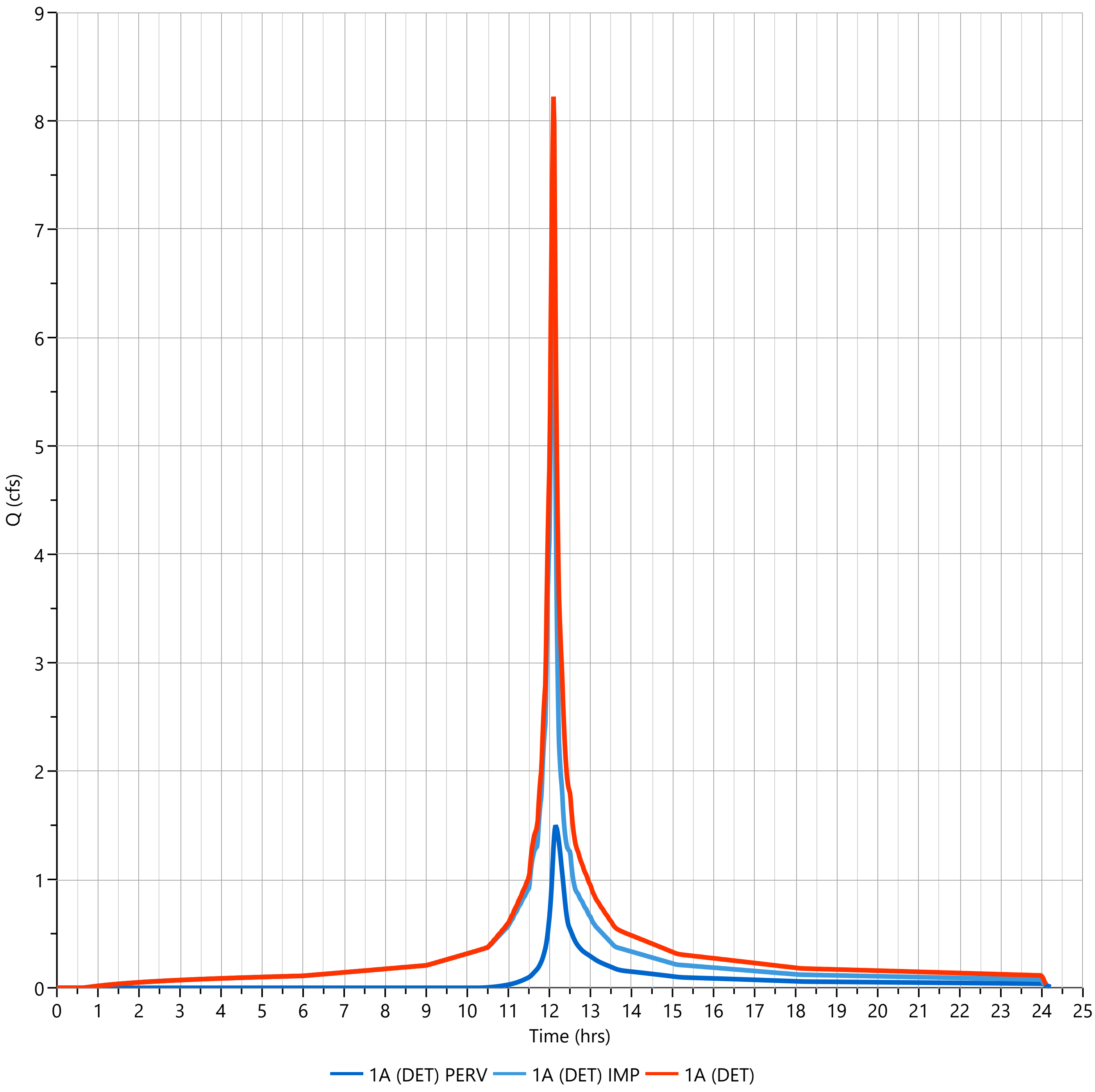


1A (DET)

Hyd. No. 3

Hydrograph Type	= Junction	Peak Flow	= 8.223 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 30,222 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.94 ac

Qp = 8.223 cfs



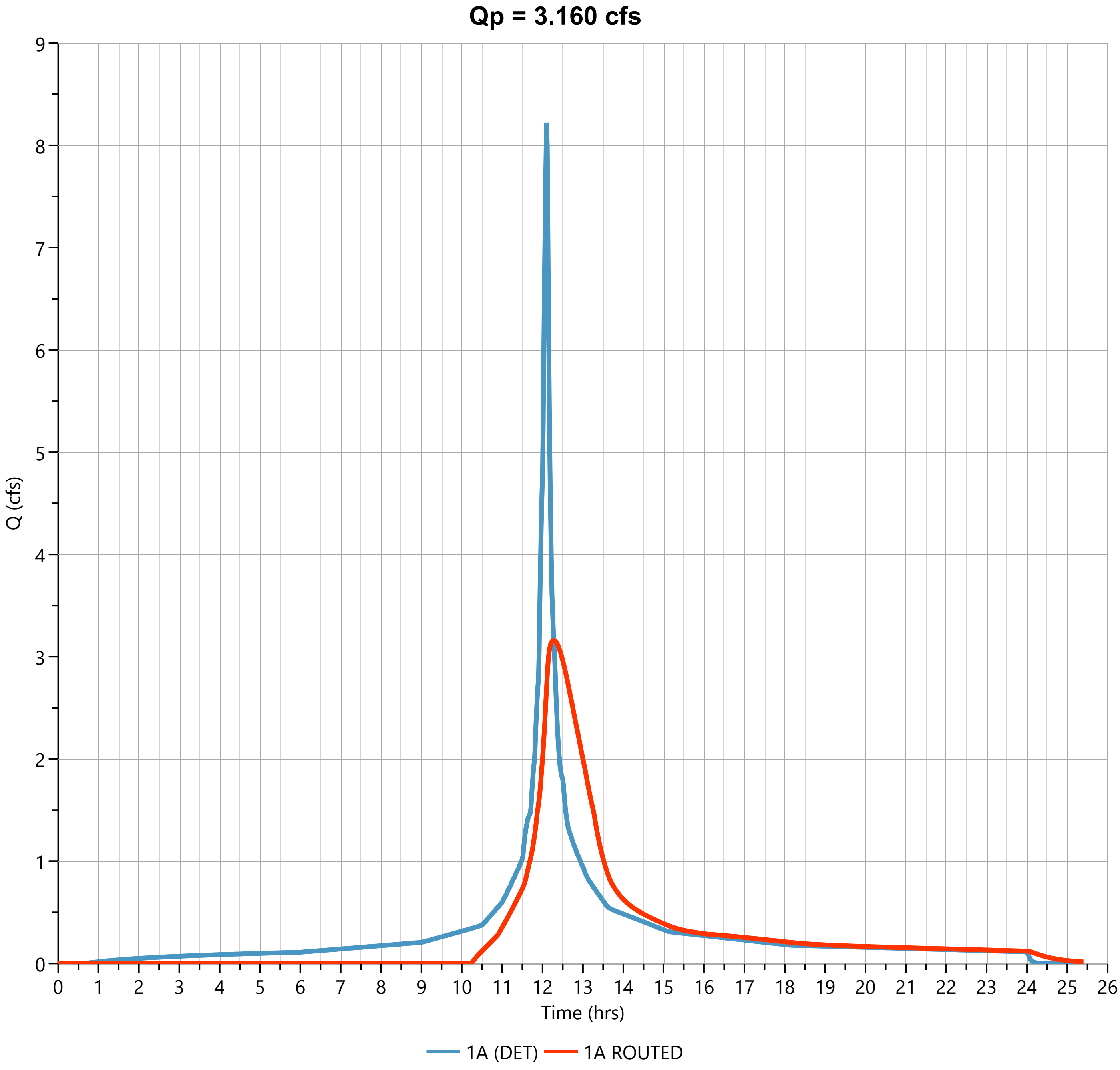
1A ROUTED

Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 3.160 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.28 hrs
Time Interval	= 1 min	Hydrograph Volume	= 25,932 cuft
Inflow Hydrograph	= 3 - 1A (DET)	Max. Elevation	= 104.06 ft
Pond Name	= Basin 2	Max. Storage	= 10,076 cuft

Pond Routing by Storage Indication Method

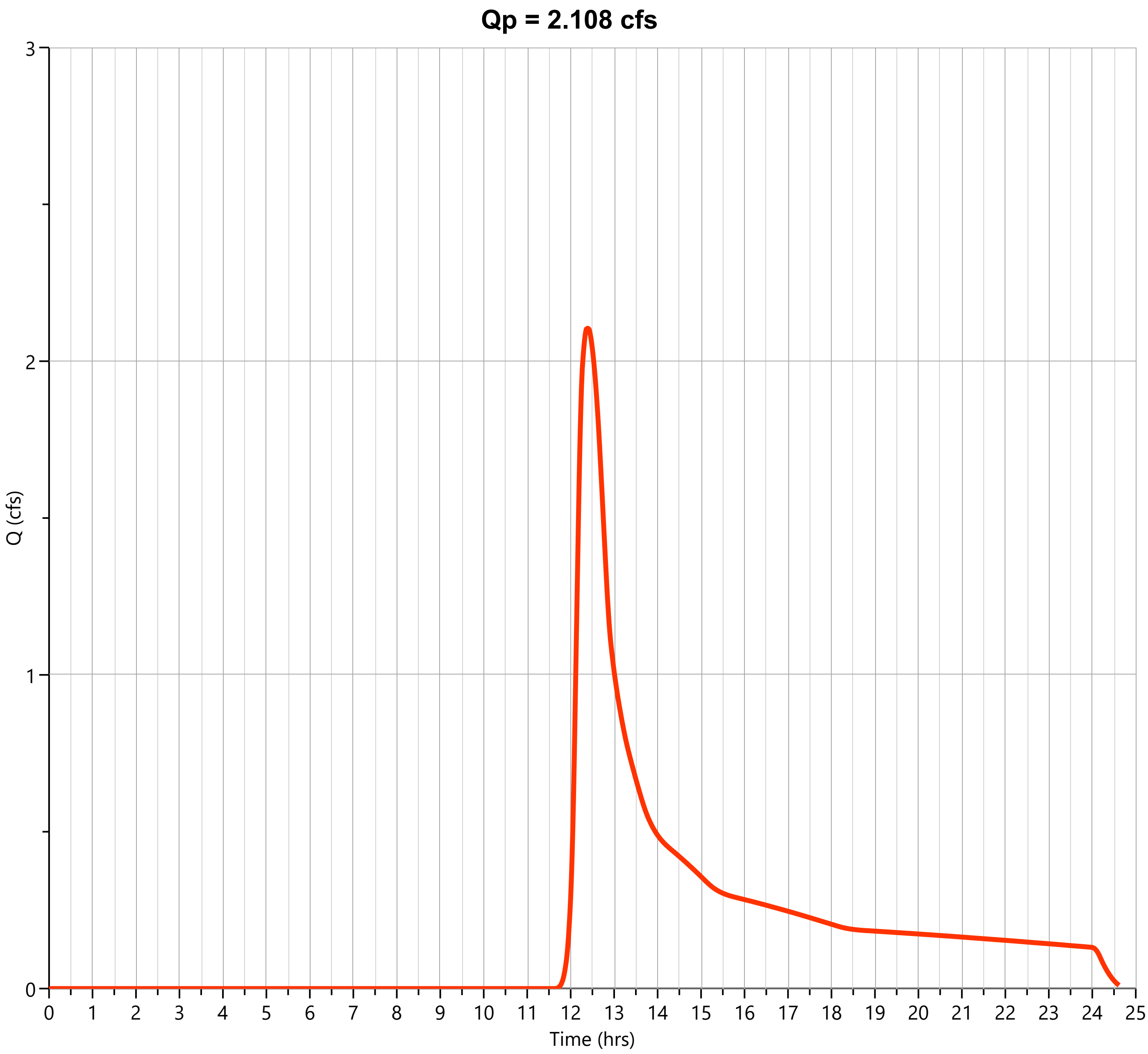
Center of mass detention time = 1.44 hrs



1B (UNDET) PERV

Hyd. No. 5

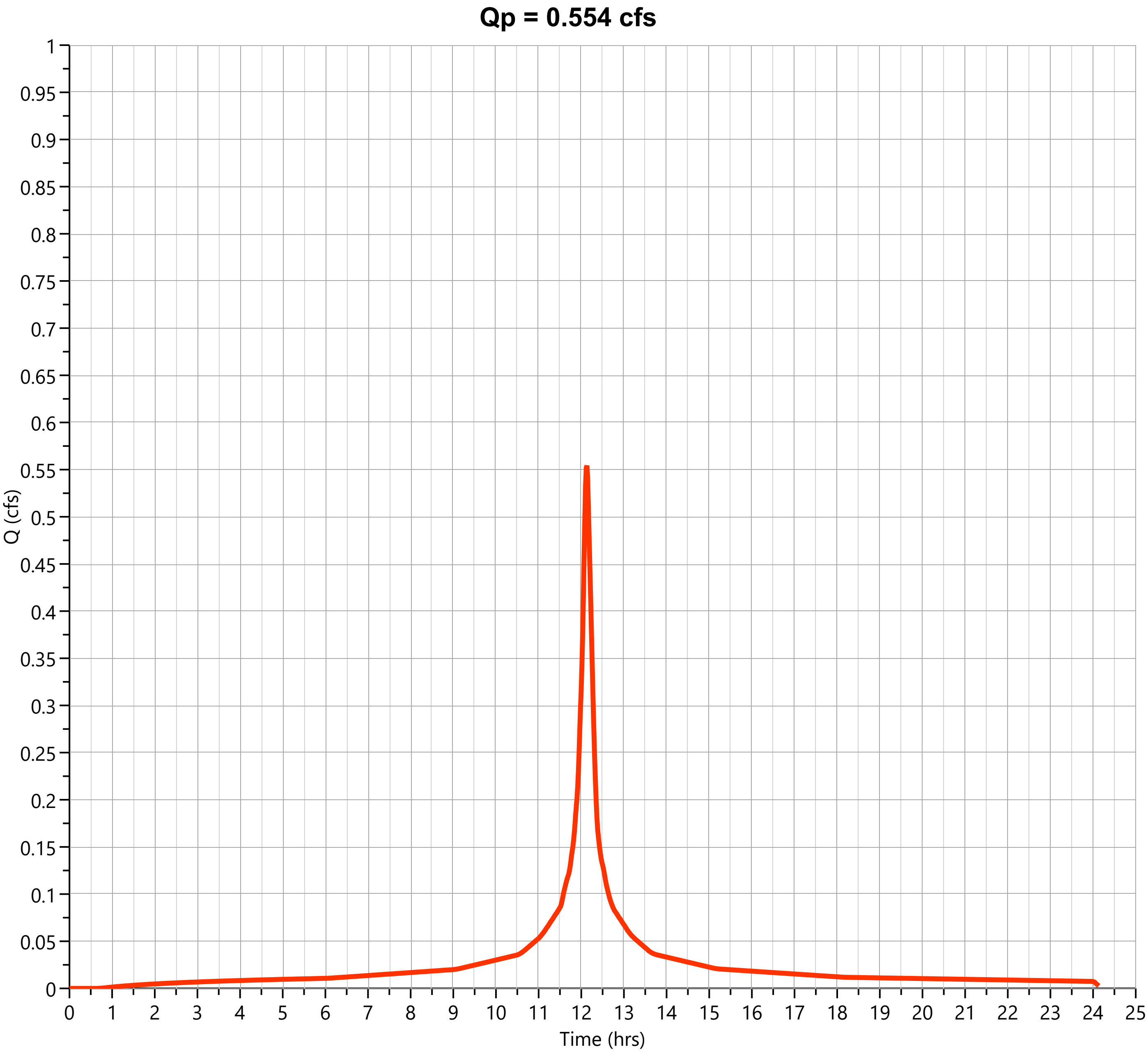
Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.108 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.38 hrs
Time Interval	= 1 min	Runoff Volume	= 16,206 cuft
Drainage Area	= 3.92 ac	Curve Number	= 49.00
Tc Method	= User	Time of Conc. (Tc)	= 17.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1B (UNDET) IMP

Hyd. No. 6

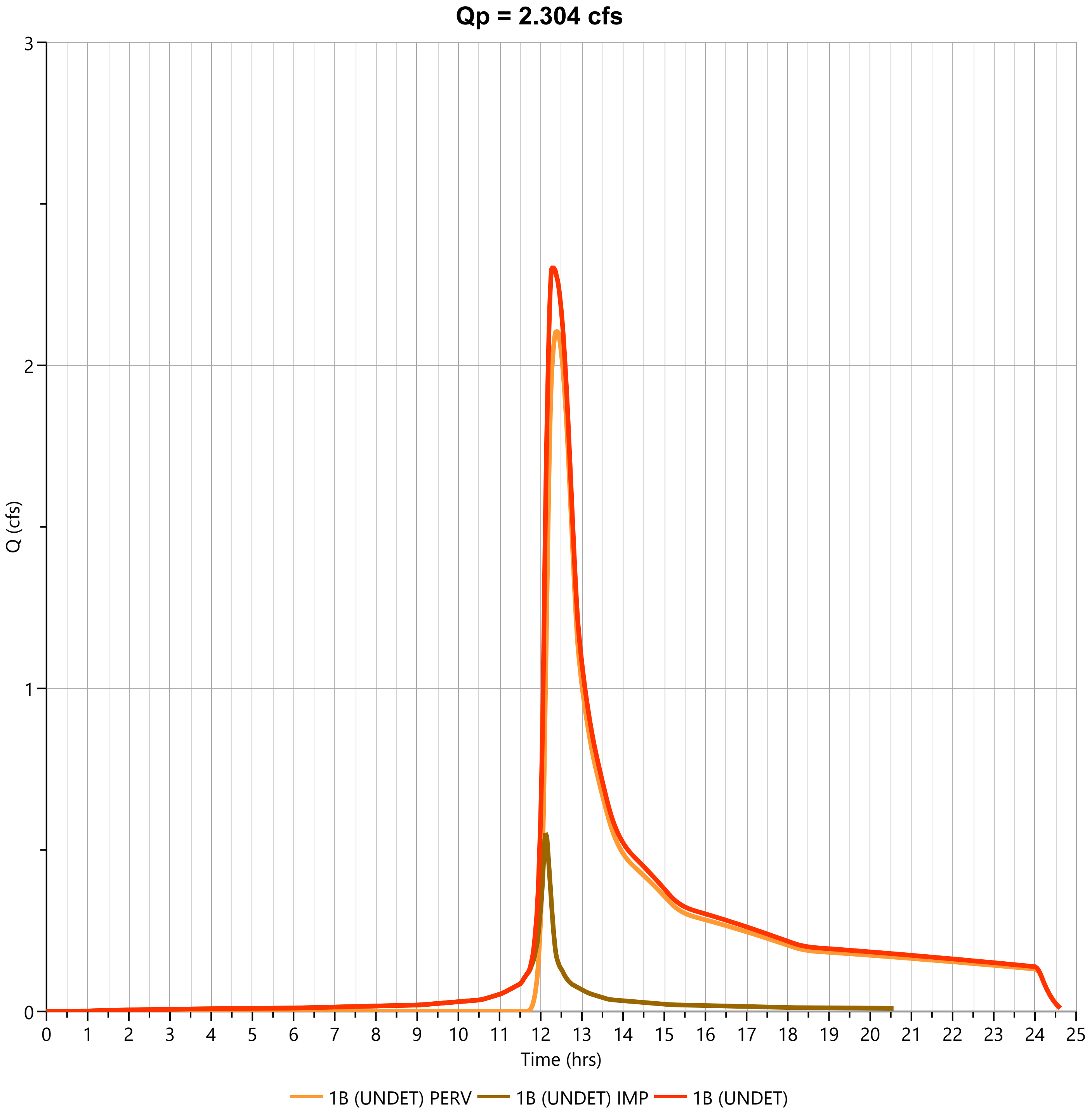
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.554 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Runoff Volume	= 2,334 cuft
Drainage Area	= 0.11 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1B (UNDET)

Hyd. No. 7

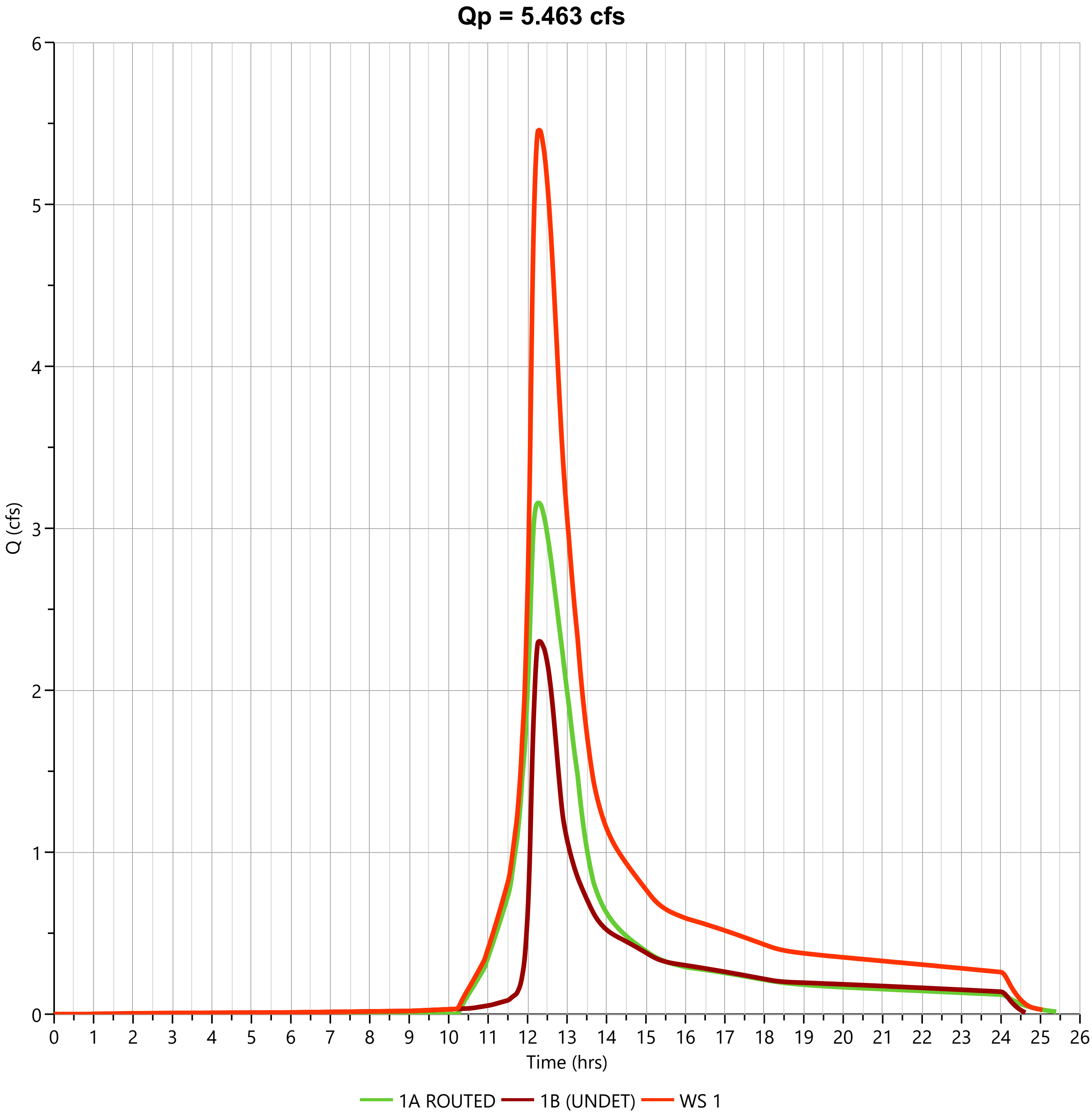
Hydrograph Type	= Junction	Peak Flow	= 2.304 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.30 hrs
Time Interval	= 1 min	Hydrograph Volume	= 18,540 cuft
Inflow Hydrographs	= 5, 6	Total Contrib. Area	= 4.03 ac



WS 1

Hyd. No. 8

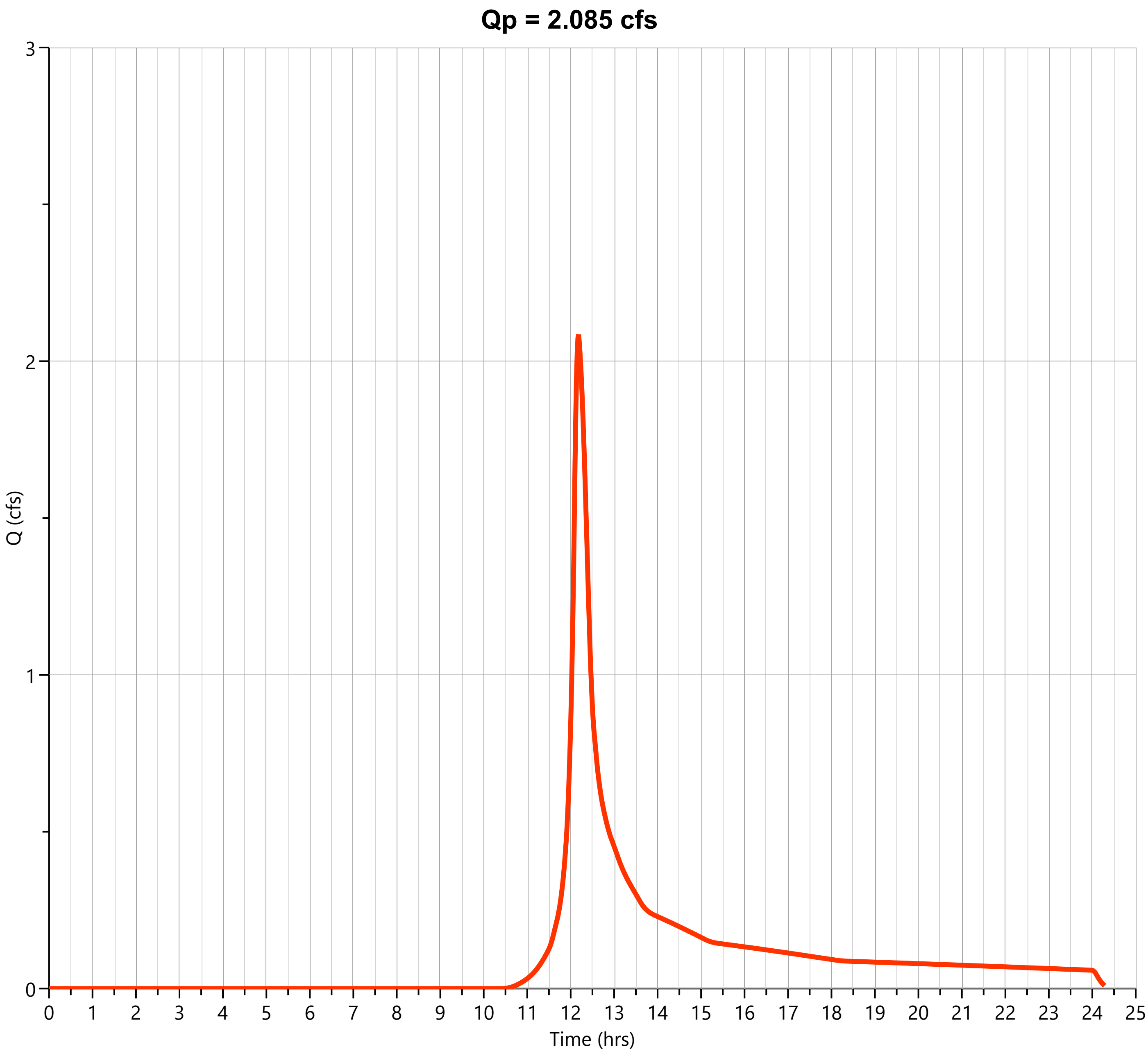
Hydrograph Type	= Junction	Peak Flow	= 5.463 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.28 hrs
Time Interval	= 1 min	Hydrograph Volume	= 44,472 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



2A (DET) PERV

Hyd. No. 9

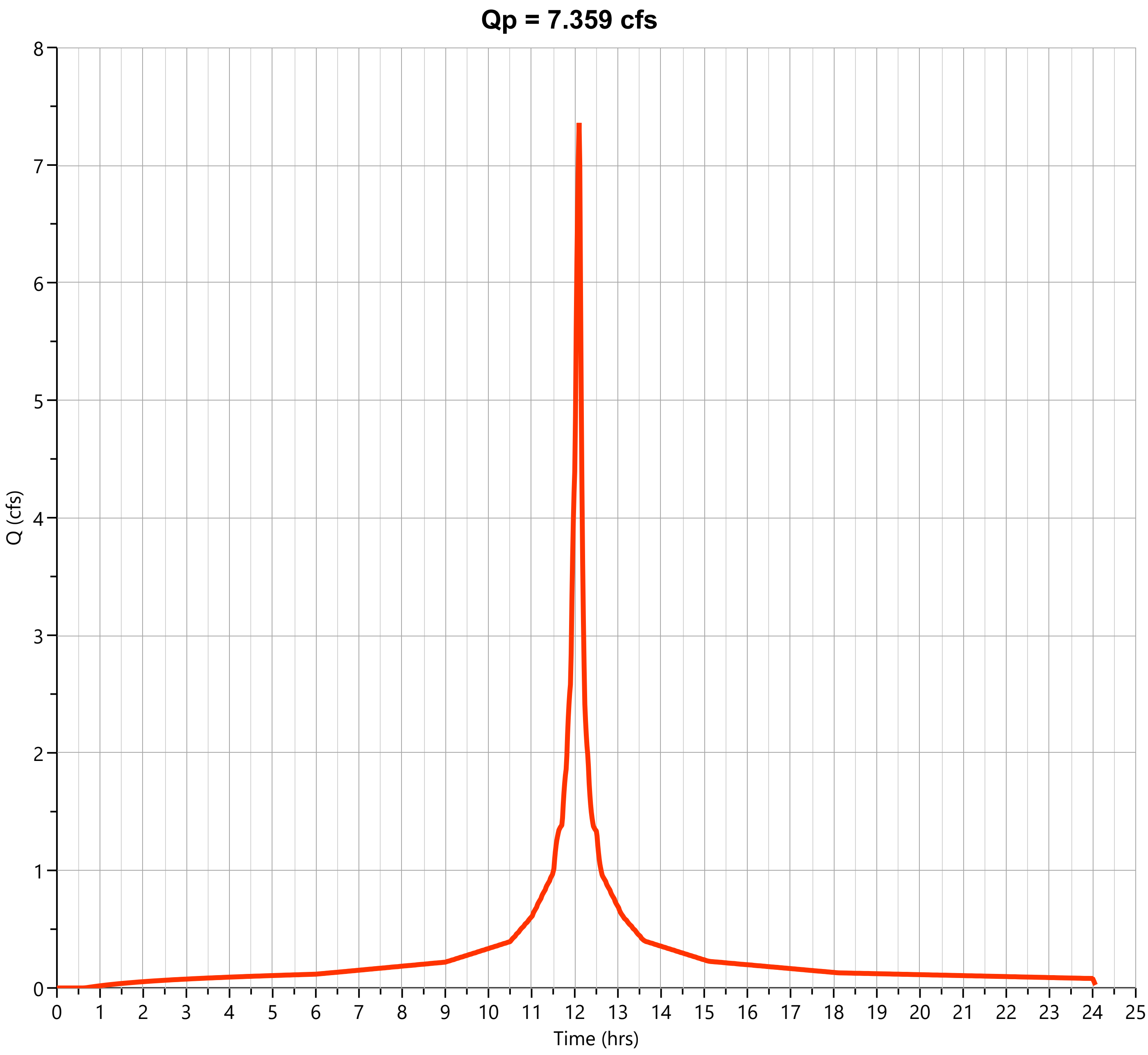
Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.085 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 9,411 cuft
Drainage Area	= 1.3 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 9.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2A (DET) IMP

Hyd. No. 10

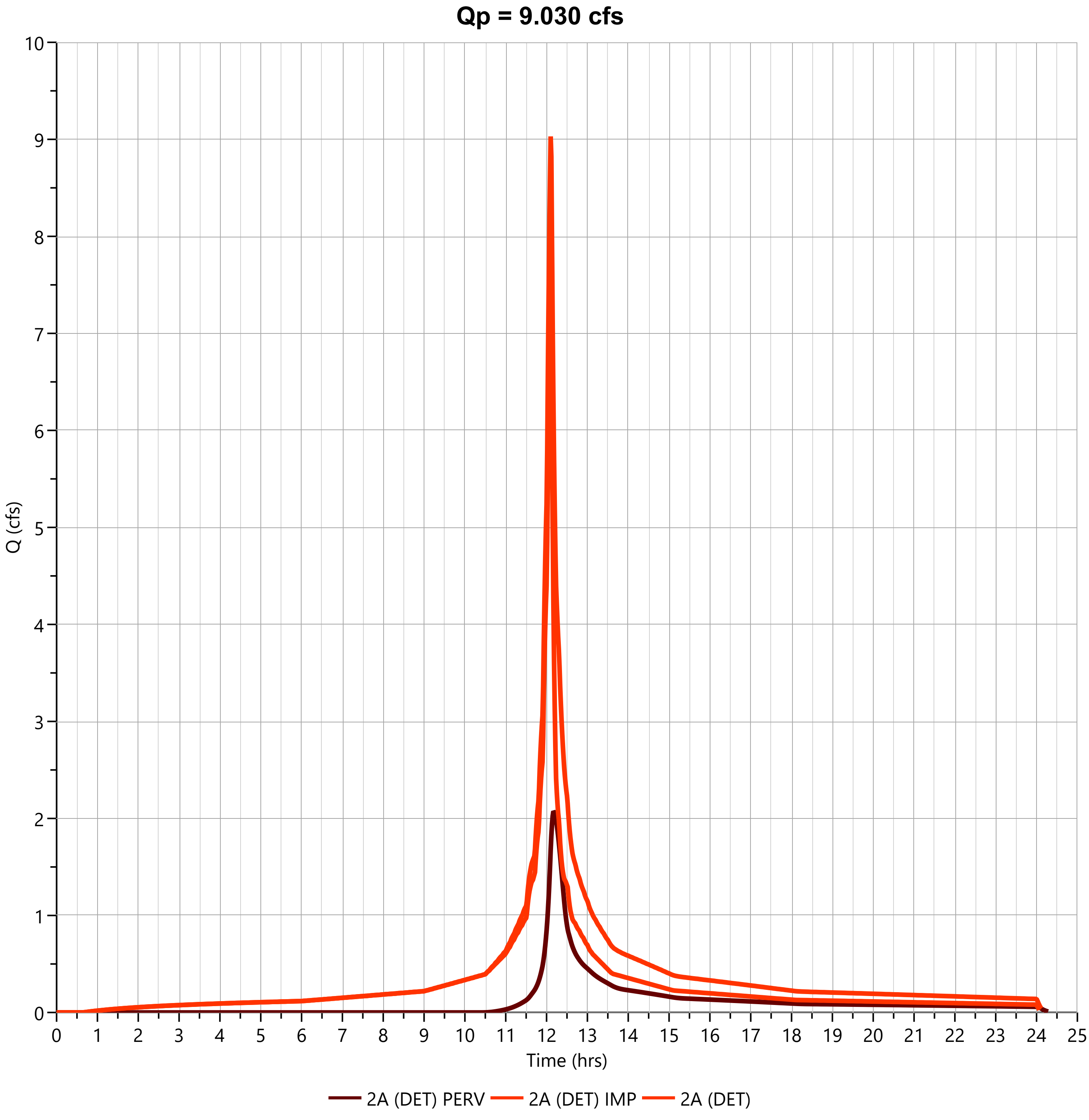
Hydrograph Type	= NRCS Runoff	Peak Flow	= 7.359 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 25,457 cuft
Drainage Area	= 1.2 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2A (DET)

Hyd. No. 11

Hydrograph Type	= Junction	Peak Flow	= 9.030 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 34,868 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 2.5 ac



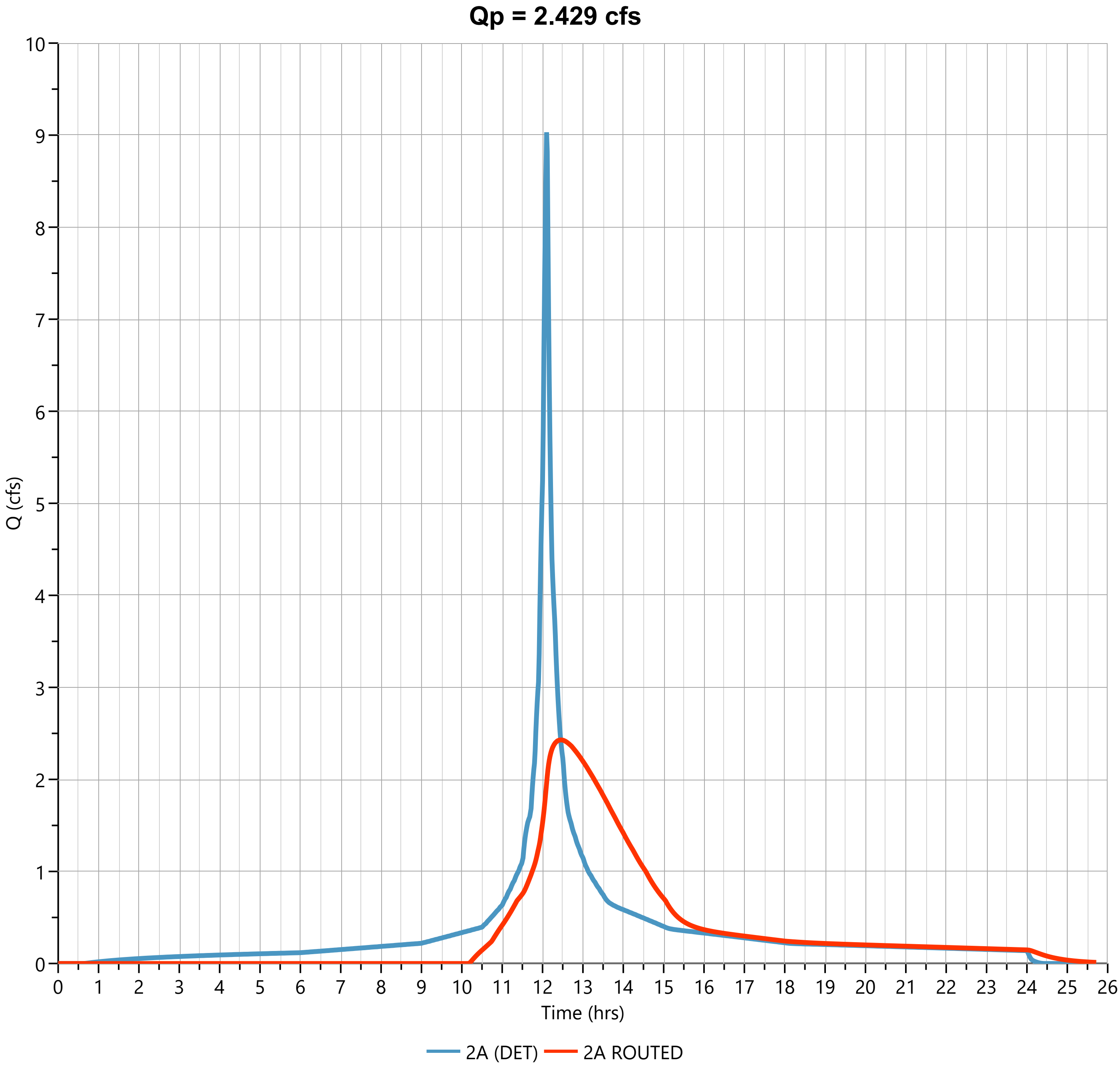
2A ROUTED

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 2.429 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.45 hrs
Time Interval	= 1 min	Hydrograph Volume	= 30,370 cuft
Inflow Hydrograph	= 11 - 2A (DET)	Max. Elevation	= 105.06 ft
Pond Name	= Basin 1	Max. Storage	= 12,872 cuft

Pond Routing by Storage Indication Method

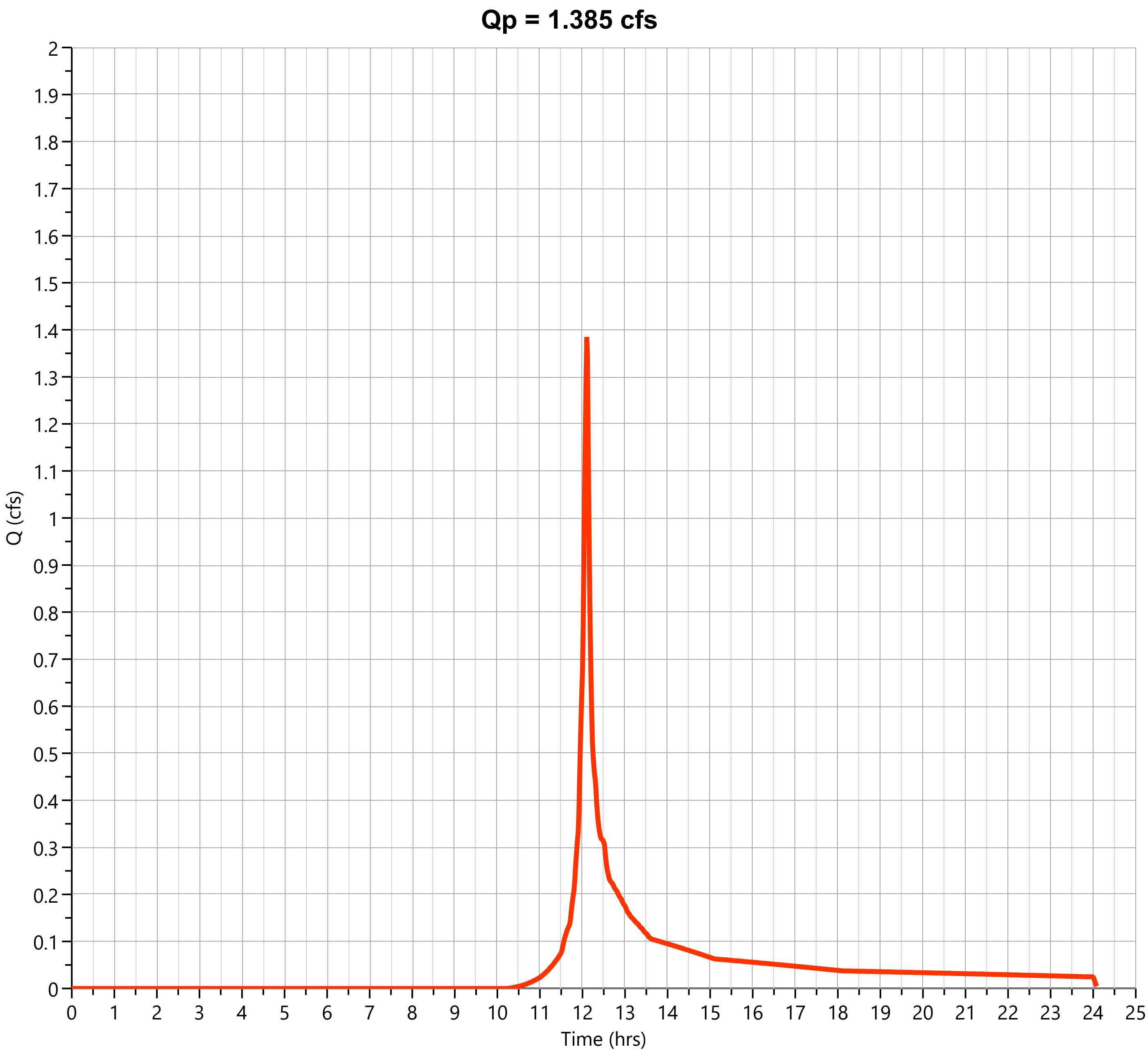
Center of mass detention time = 1.57 hrs



2B (DET) PERV

Hyd. No. 13

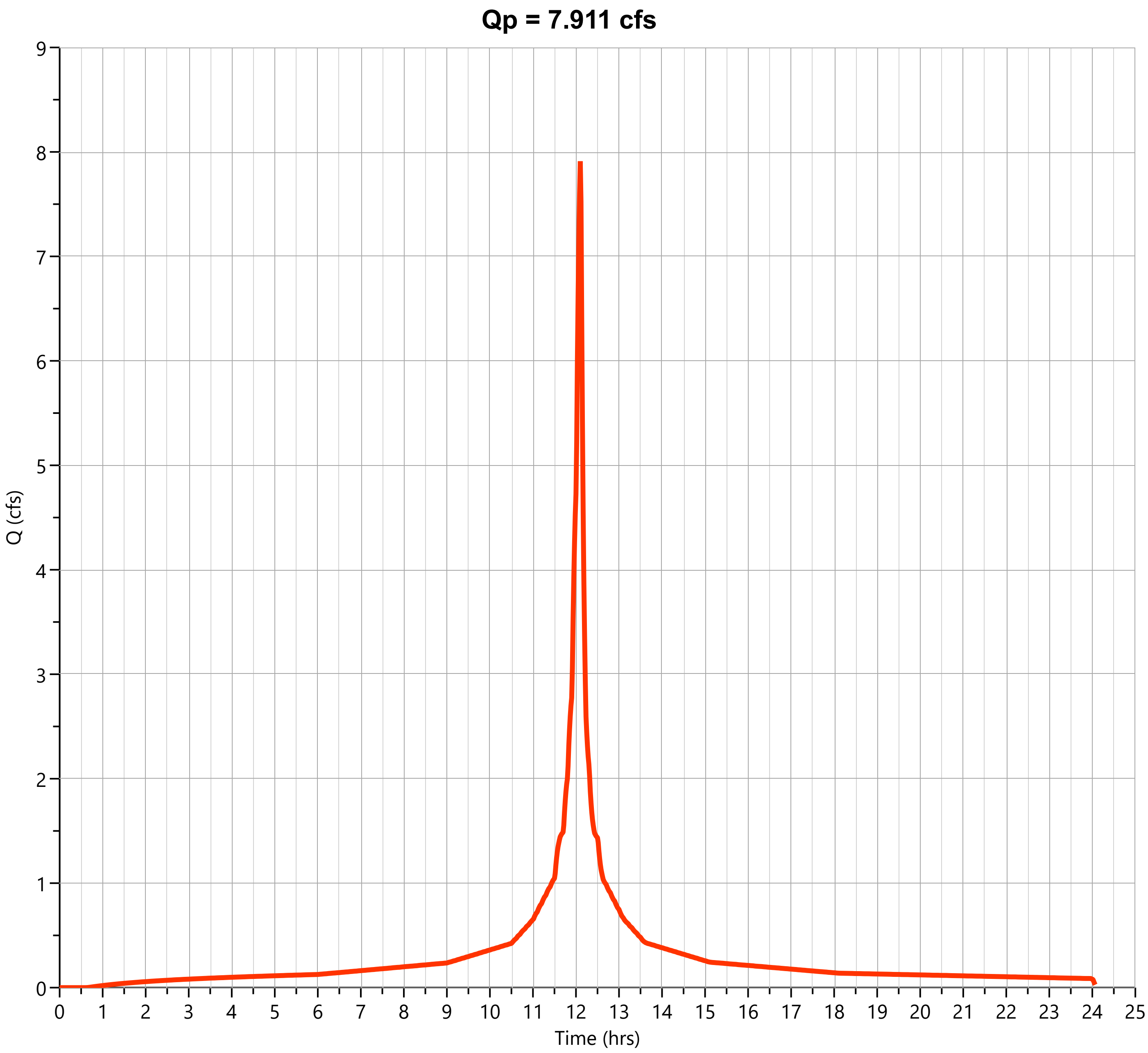
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.385 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 4,076 cuft
Drainage Area	= 0.54 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 2.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2B (DET) IMP

Hyd. No. 14

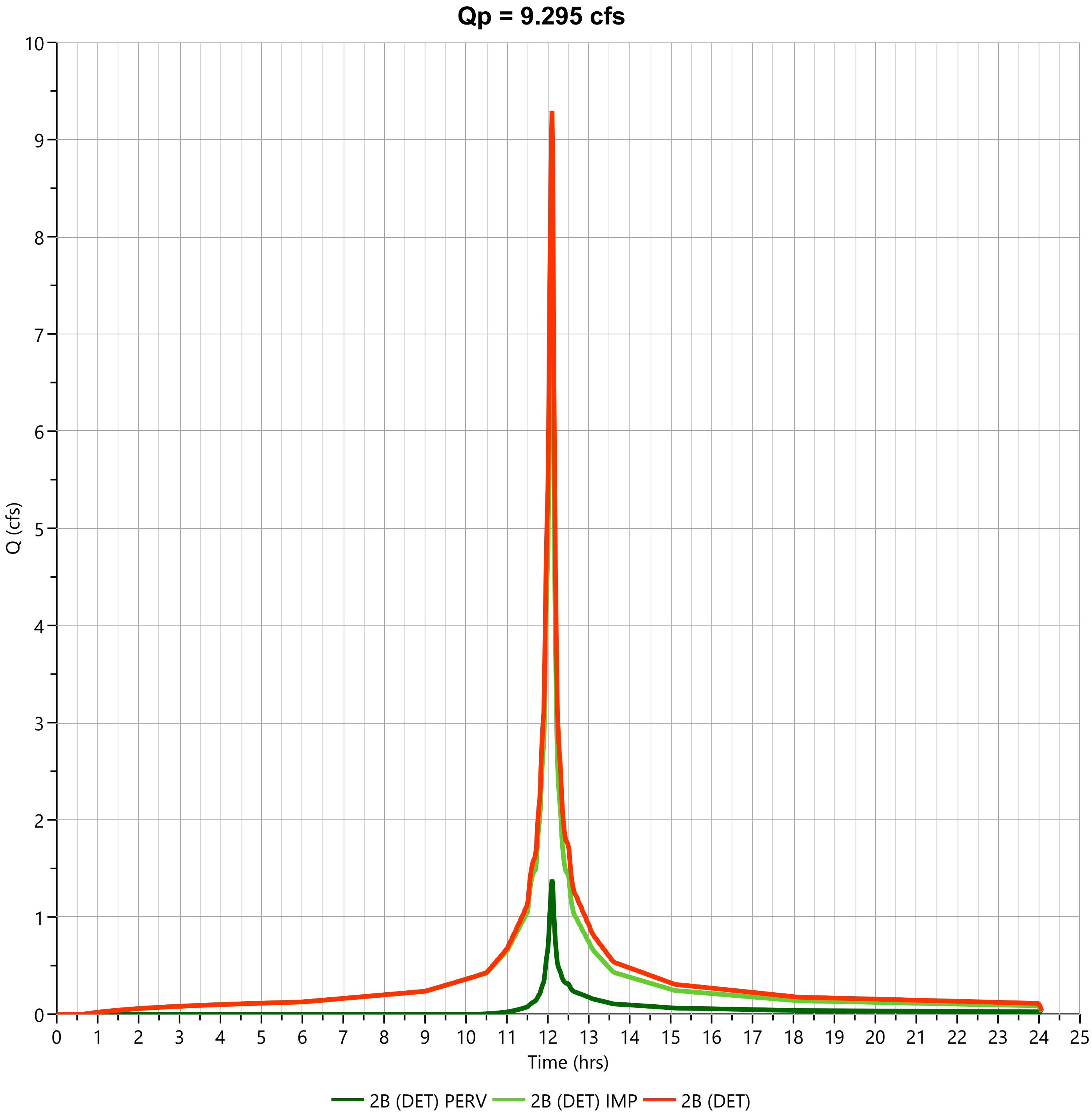
Hydrograph Type	= NRCS Runoff	Peak Flow	= 7.911 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 27,367 cuft
Drainage Area	= 1.29 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2B (DET)

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 9.295 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 31,443 cuft
Inflow Hydrographs	= 13, 14	Total Contrib. Area	= 1.83 ac



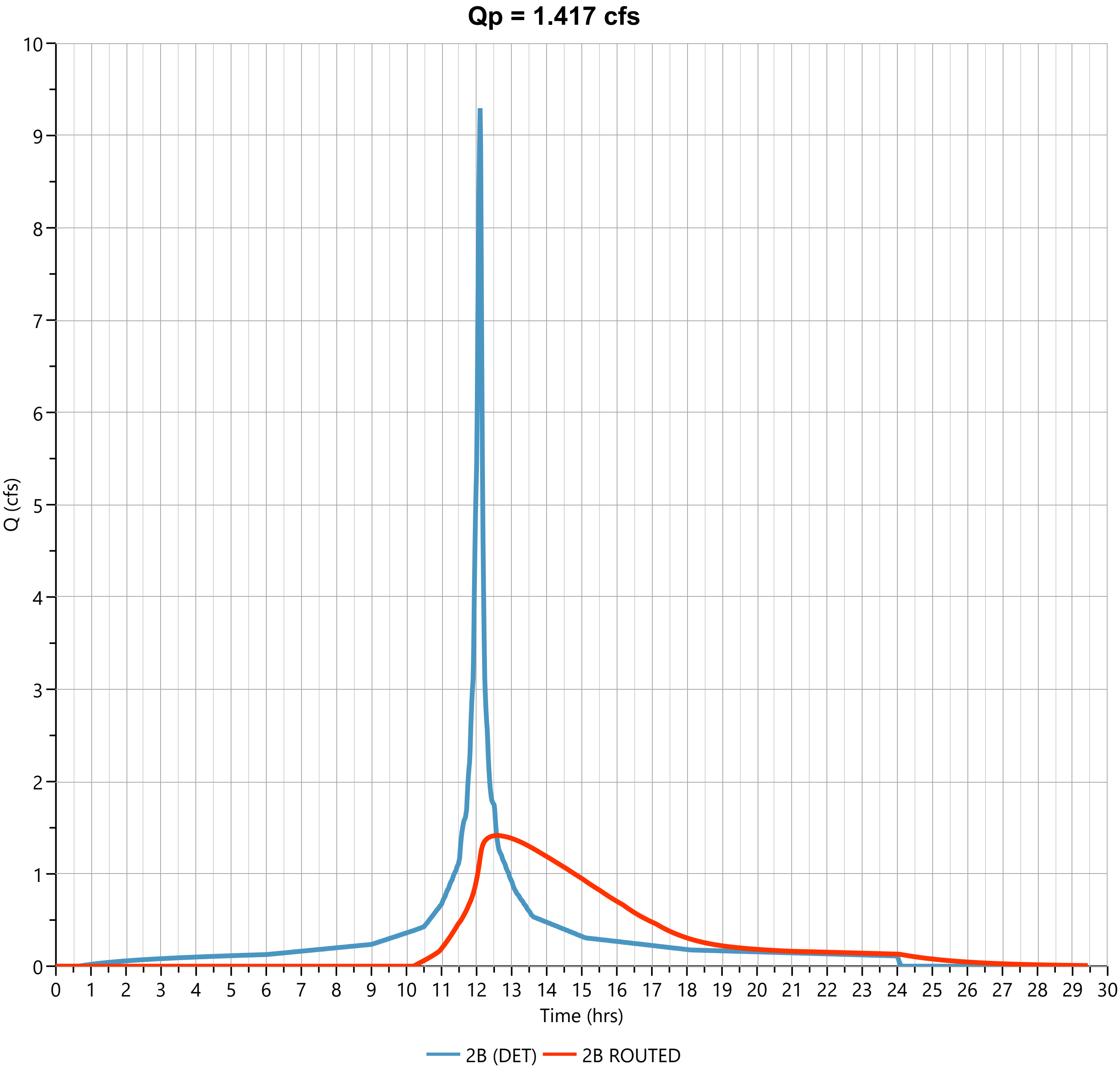
2B ROUTED

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 1.417 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.57 hrs
Time Interval	= 1 min	Hydrograph Volume	= 26,586 cuft
Inflow Hydrograph	= 15 - 2B (DET)	Max. Elevation	= 103.99 ft
Pond Name	= Basin 3	Max. Storage	= 15,493 cuft

Pond Routing by Storage Indication Method

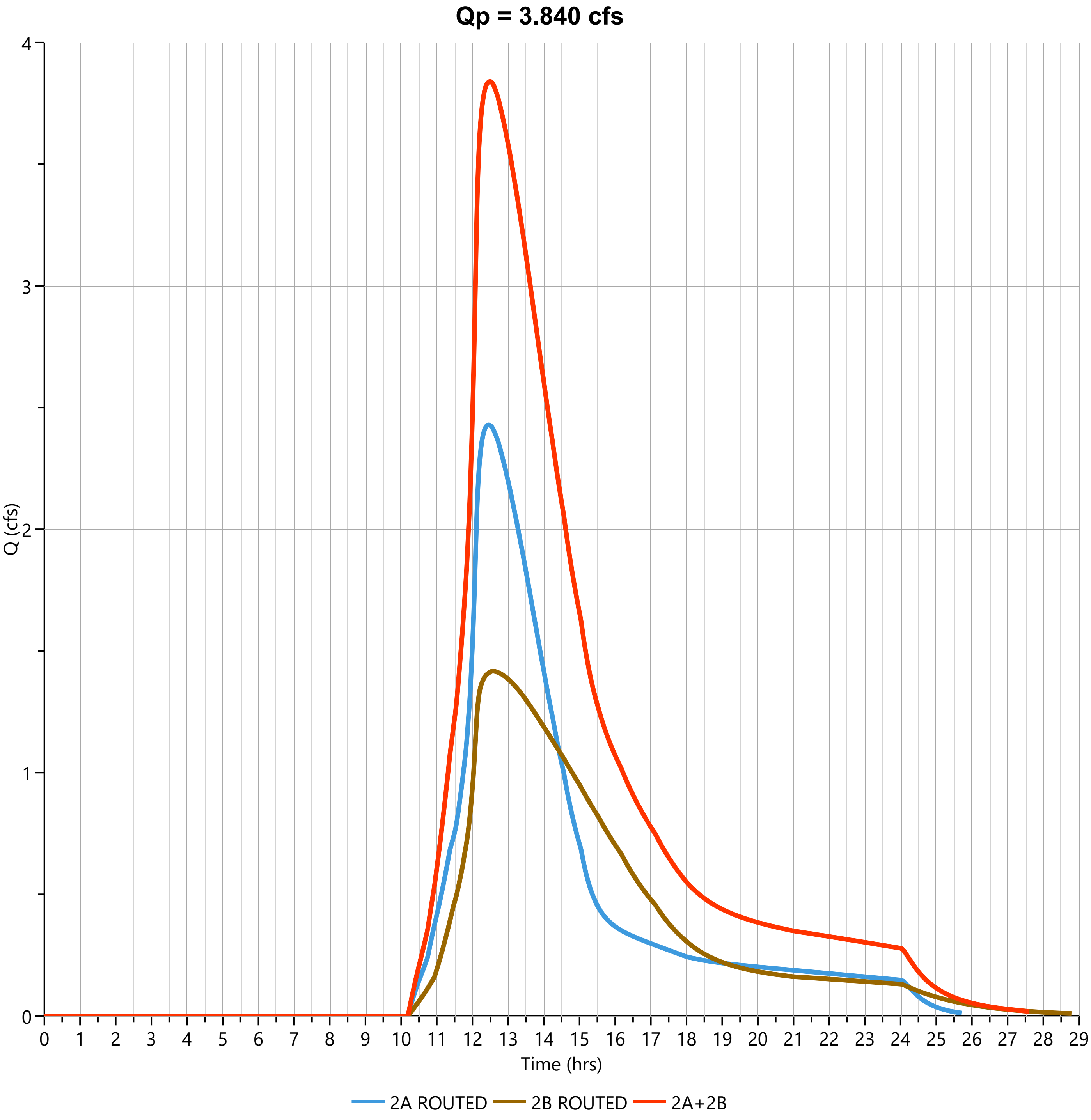
Center of mass detention time = 2.70 hrs



2A+2B

Hyd. No. 17

Hydrograph Type	= Junction	Peak Flow	= 3.840 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.50 hrs
Time Interval	= 1 min	Hydrograph Volume	= 56,956 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac

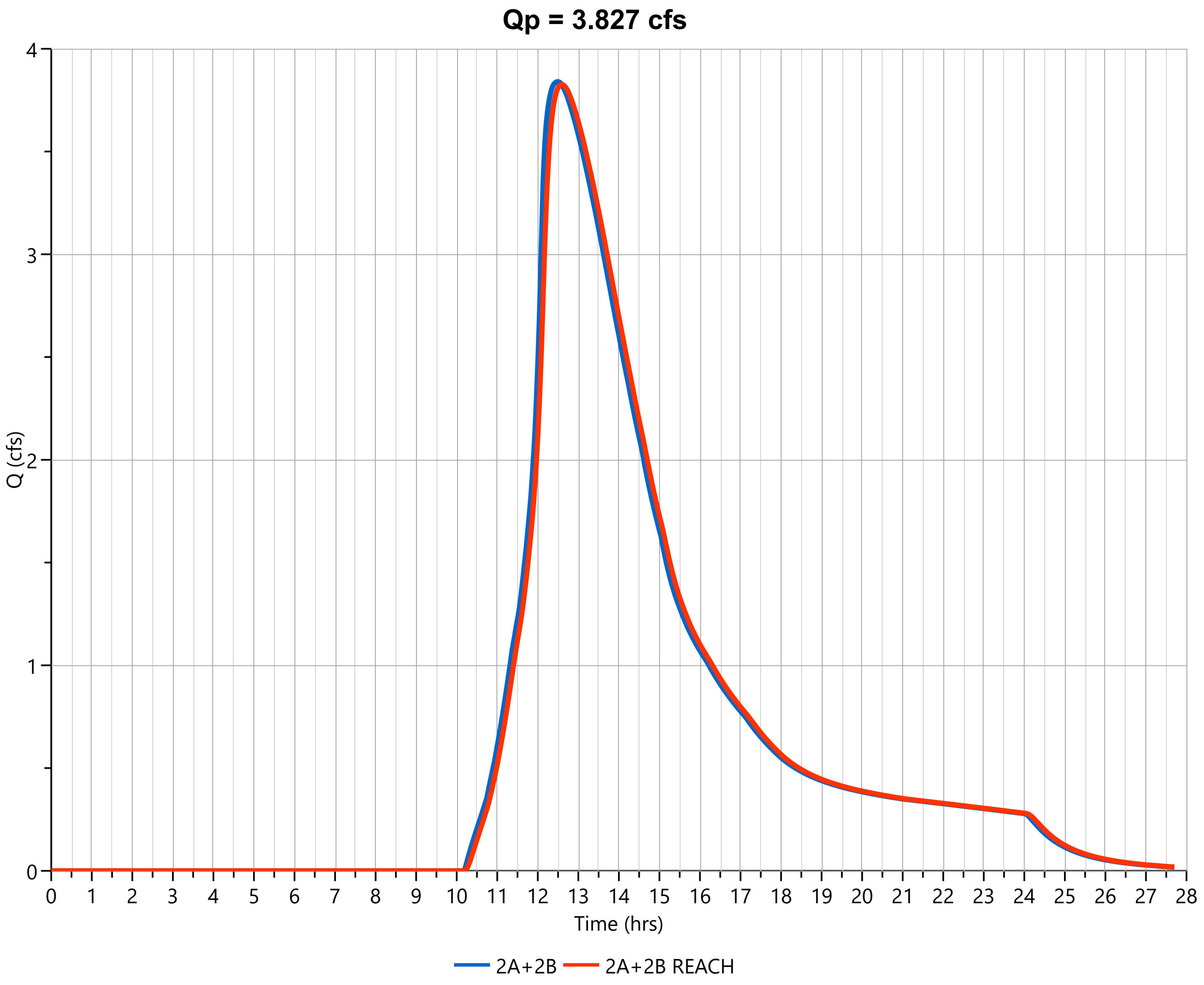


2A+2B REACH

Hyd. No. 18

Hydrograph Type	= Reach	Peak Flow	= 3.827 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.60 hrs
Time Interval	= 1 min	Hydrograph Volume	= 56,895 cuft
Inflow Hydrograph	= 17 - 2A+2B	Section Type	= Circular
Reach Length	= 435 ft	Channel Slope	= 0.50 %
Manning's n	= 0.012	Pipe Diameter	= 2.00 ft
Side Slope (h:v)	= n/a	Maximum Depth	= n/a
Rating Curve X	= 5.318	Average Velocity	= 1.22 ft/s
Rating Curve m	= 1.250	Routing Coeff.	= 0.1907

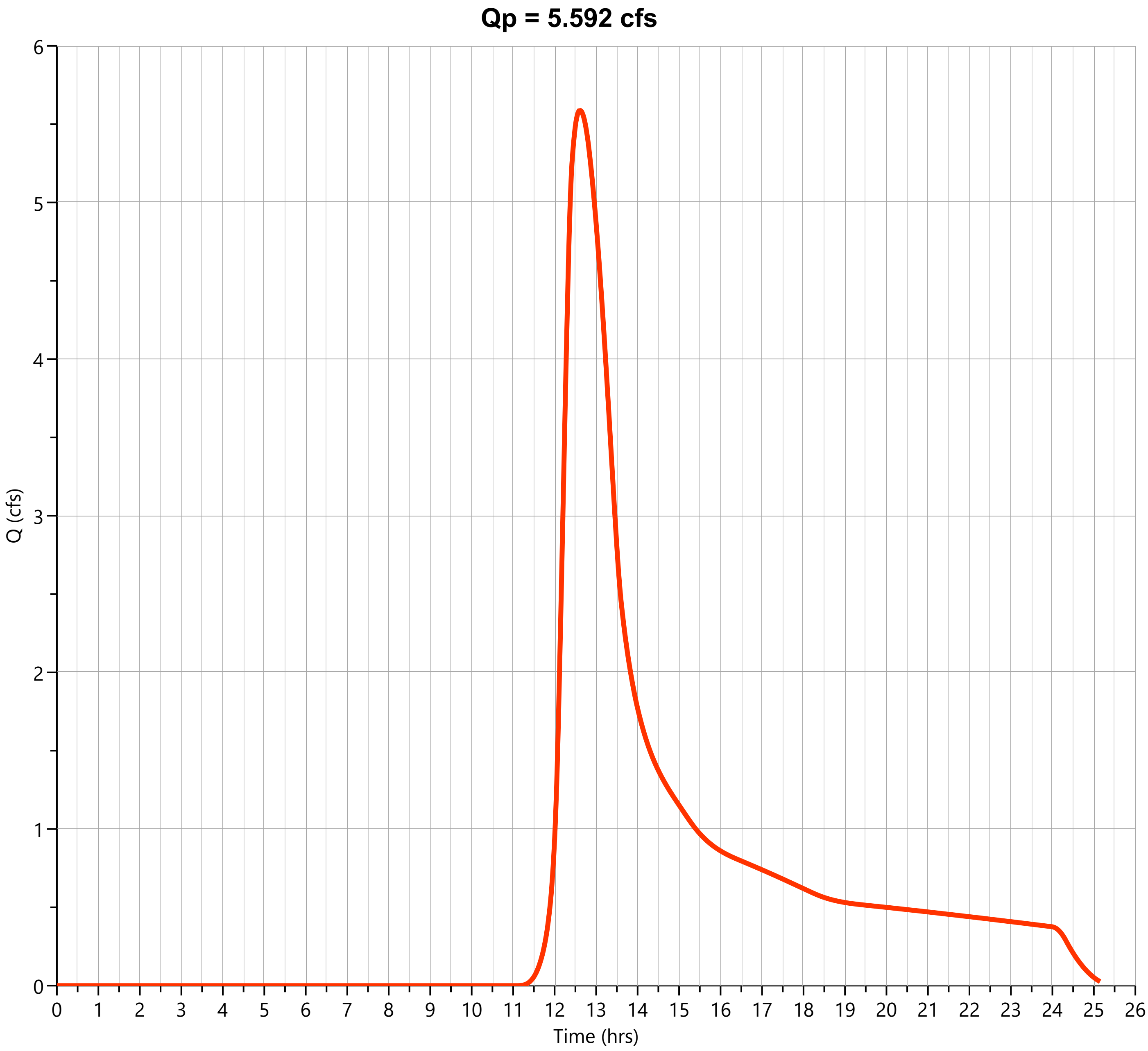
Modified Att-Kin routing method



2C (UNDET) PERV

Hyd. No. 19

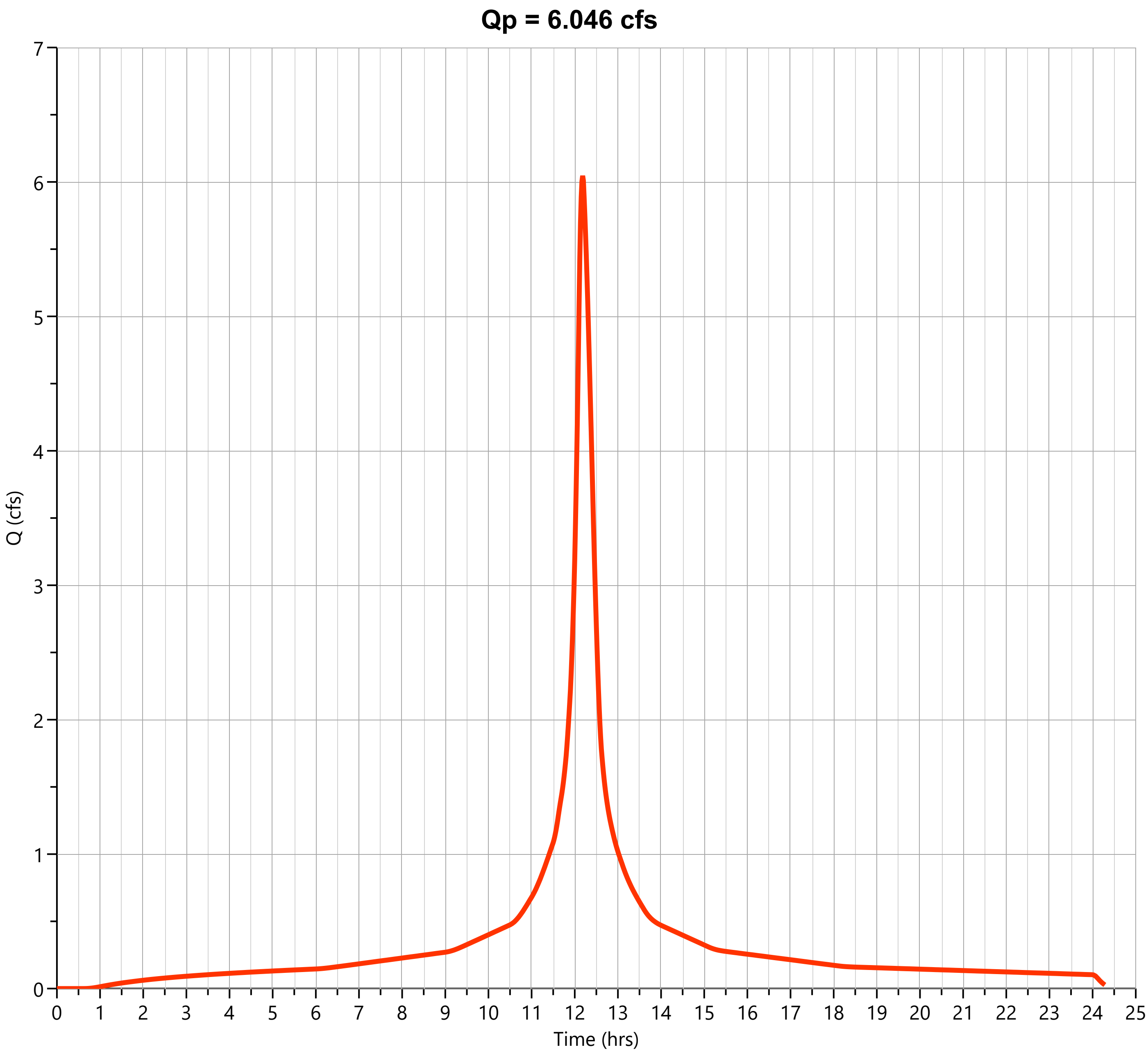
Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.592 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.62 hrs
Time Interval	= 1 min	Runoff Volume	= 52,422 cuft
Drainage Area	= 9.02 ac	Curve Number	= 55.00
Tc Method	= User	Time of Conc. (Tc)	= 33.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2C (UNDET) IMP

Hyd. No. 20

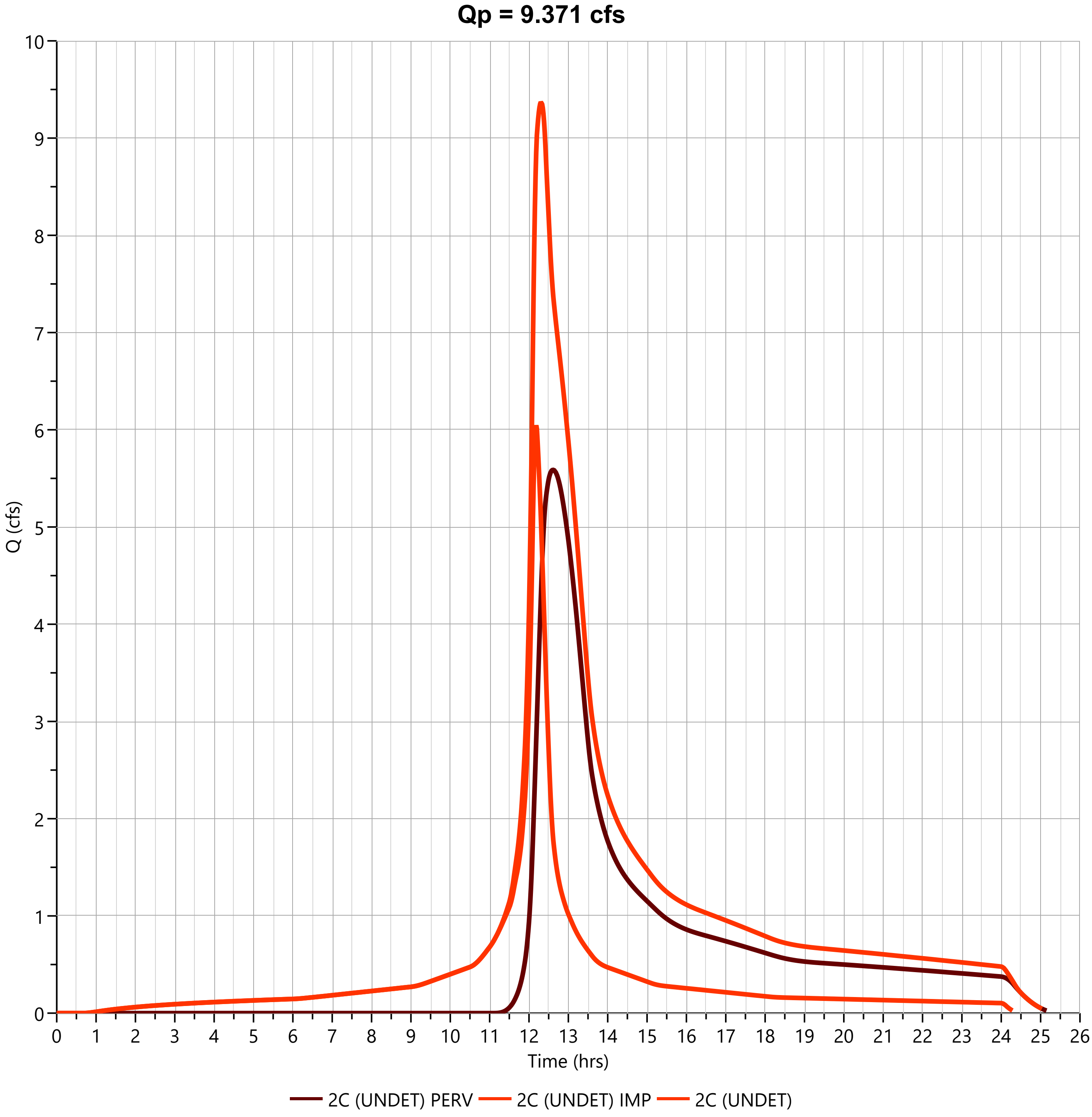
Hydrograph Type	= NRCS Runoff	Peak Flow	= 6.046 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 32,111 cuft
Drainage Area	= 1.49 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 6.14 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2C (UNDET)

Hyd. No. 21

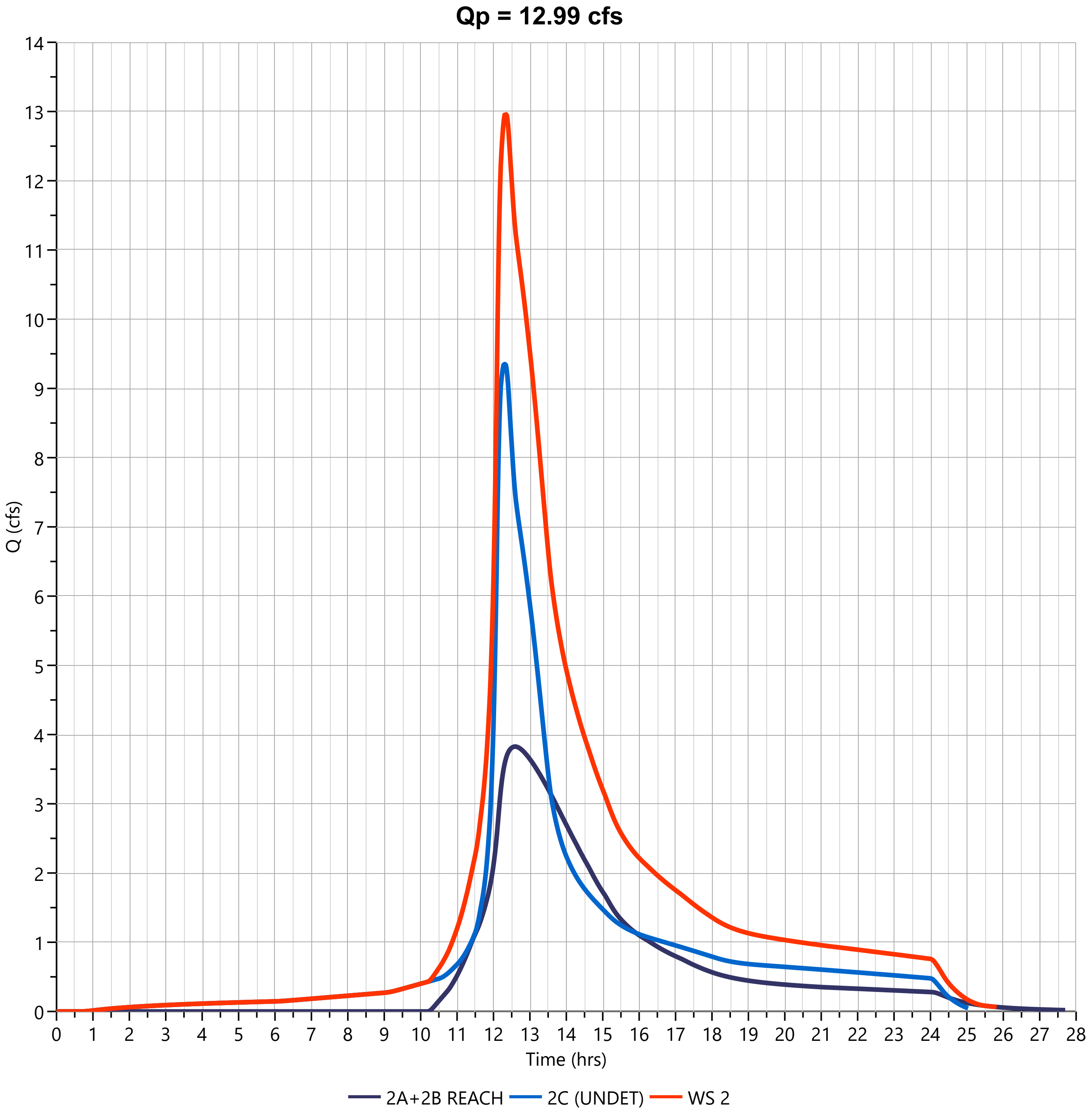
Hydrograph Type	= Junction	Peak Flow	= 9.371 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.30 hrs
Time Interval	= 1 min	Hydrograph Volume	= 84,533 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 10.51 ac



WS 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 12.99 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.33 hrs
Time Interval	= 1 min	Hydrograph Volume	= 141,429 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



Hydrograph 100-yr Summary

Hydrology Studio v 3.0.0.44

File: 102054601 - Proposed.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	1A (DET) PERV	4.410	12.15	17,611	----		
2	NRCS Runoff	1A (DET) IMP	12.52	12.10	43,954	----		
3	Junction	1A (DET)	16.45	12.10	61,565	1, 2		
4	Pond Route	1A ROUTED	6.185	12.32	57,274	3	104.97	17,096
5	NRCS Runoff	1B (UNDET) PERV	9.742	12.30	59,208	----		
6	NRCS Runoff	1B (UNDET) IMP	1.001	12.13	4,279	----		
7	Junction	1B (UNDET)	10.31	12.27	63,486	5, 6		
8	Junction	WS 1	16.47	12.27	120,761	4, 7		
9	NRCS Runoff	2A (DET) PERV	6.284	12.17	26,978	----		
10	NRCS Runoff	2A (DET) IMP	13.29	12.10	46,676	----		
11	Junction	2A (DET)	18.60	12.10	73,654	9, 10		
12	Pond Route	2A ROUTED	5.223	12.47	69,156	11	106.45	24,324
13	NRCS Runoff	2B (DET) PERV	3.956	12.10	11,485	----		
14	NRCS Runoff	2B (DET) IMP	14.29	12.10	50,177	----		
15	Junction	2B (DET)	18.24	12.10	61,662	13, 14		
16	Pond Route	2B ROUTED	2.674	12.58	56,805	15	104.97	27,324
17	Junction	2A+2B	7.884	12.48	125,961	12, 16		
18	Reach	2A+2B REACH	7.878	12.53	125,901	17		
19	NRCS Runoff	2C (UNDET) PERV	19.89	12.50	165,428	----		
20	NRCS Runoff	2C (UNDET) IMP	10.92	12.18	58,876	----		
21	Junction	2C (UNDET)	26.71	12.37	224,304	19, 20		
22	Junction	WS 2	34.41	12.37	350,206	18, 21		

Hydrograph Report

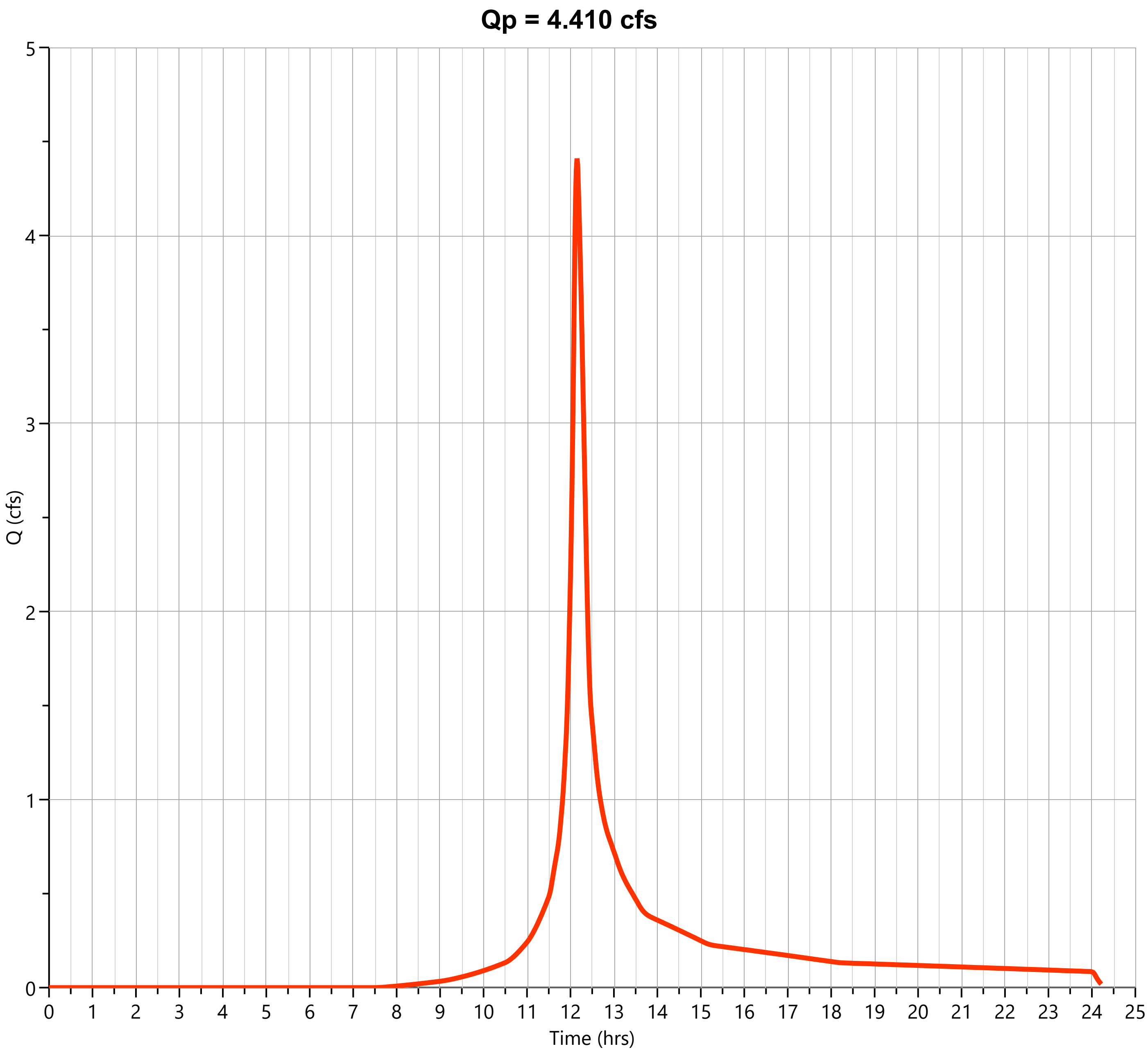
Hydrology Studio v 3.0.0.44

File: 102054601 - Proposed.hys
07-23-2026

1A (DET) PERV

Hyd. No. 1

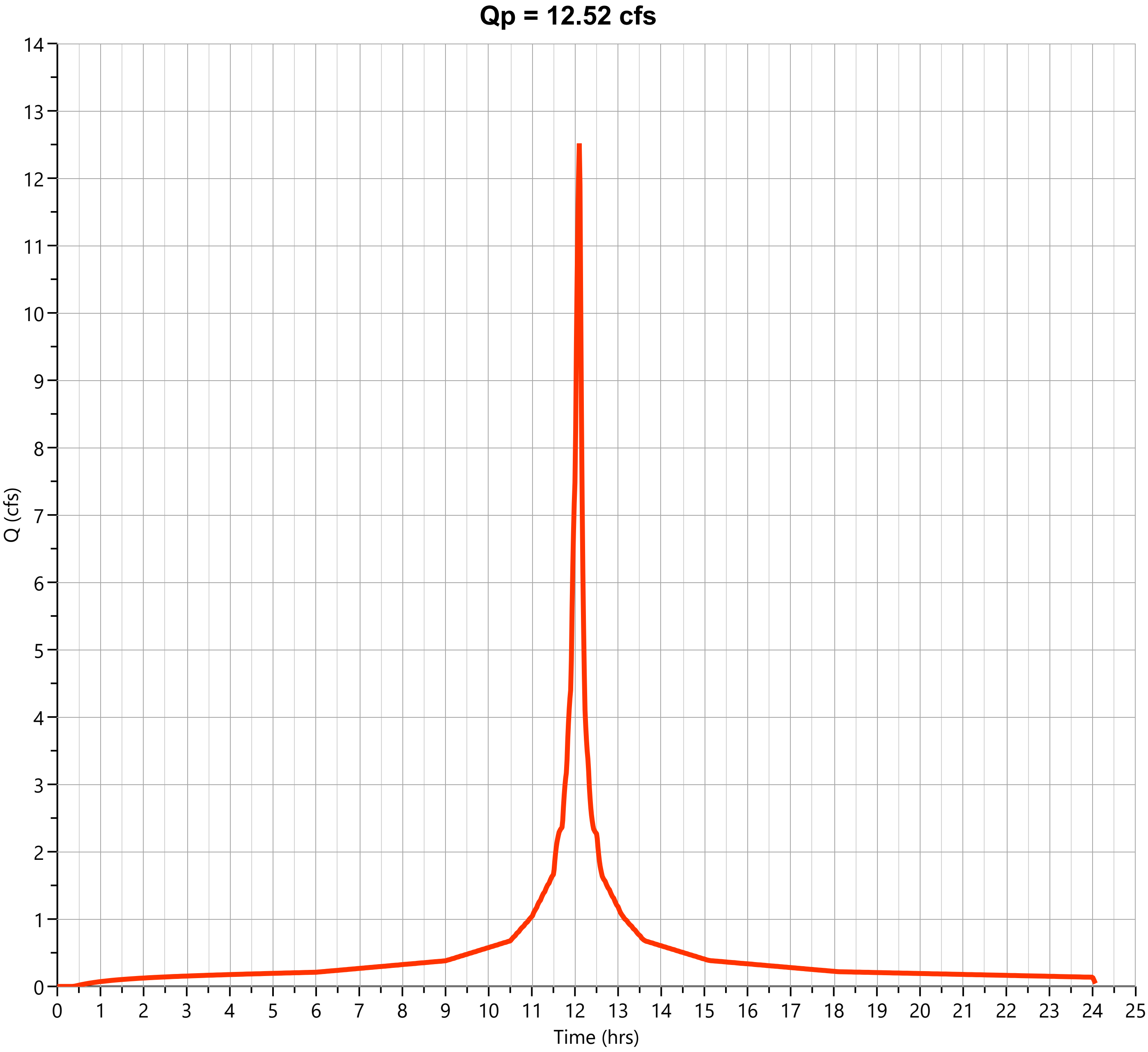
Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.410 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.15 hrs
Time Interval	= 1 min	Runoff Volume	= 17,611 cuft
Drainage Area	= 0.81 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 8.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1A (DET) IMP

Hyd. No. 2

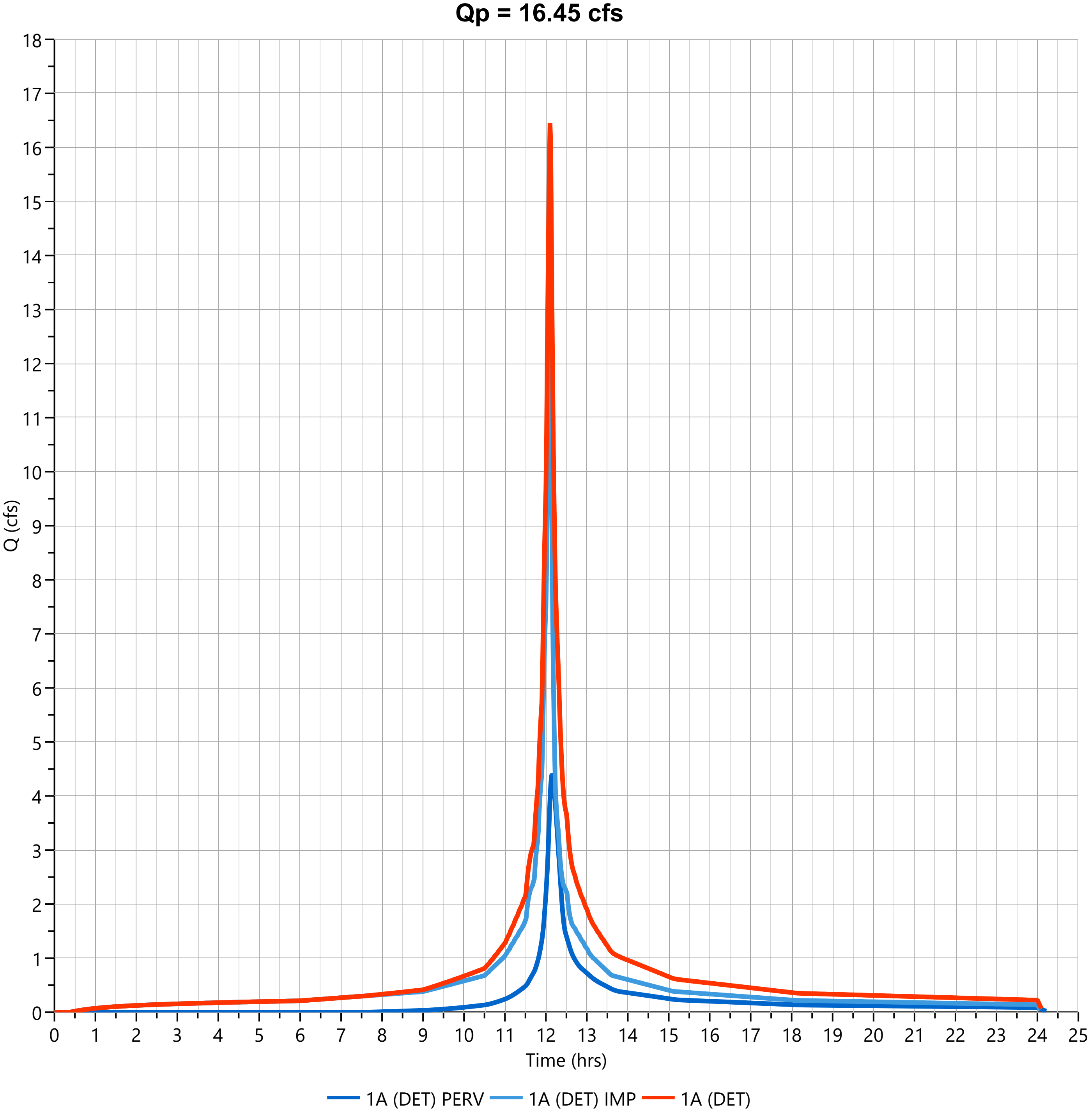
Hydrograph Type	= NRCS Runoff	Peak Flow	= 12.52 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 43,954 cuft
Drainage Area	= 1.13 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1A (DET)

Hyd. No. 3

Hydrograph Type	= Junction	Peak Flow	= 16.45 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 61,565 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.94 ac



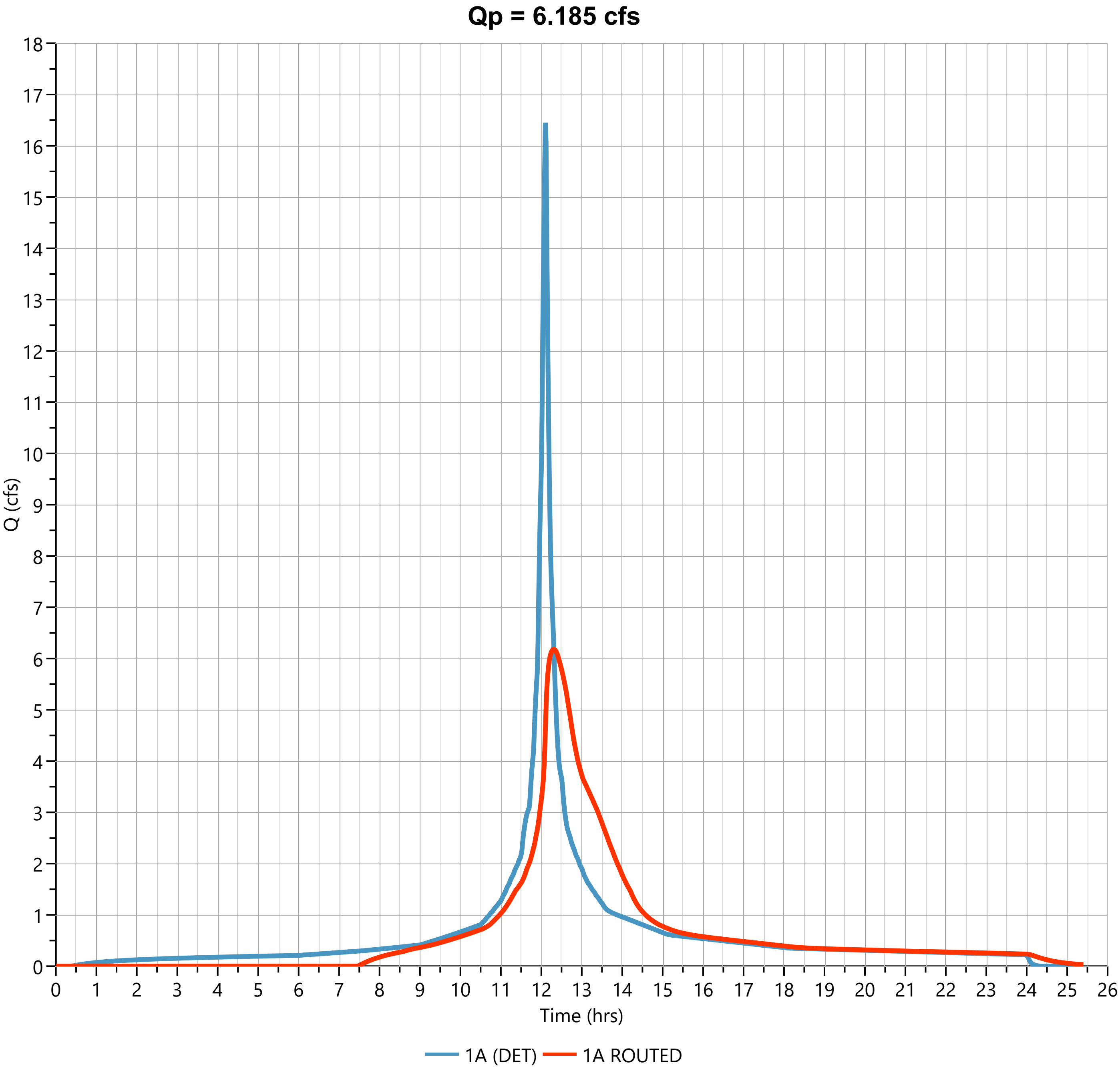
1A ROUTED

Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 6.185 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.32 hrs
Time Interval	= 1 min	Hydrograph Volume	= 57,274 cuft
Inflow Hydrograph	= 3 - 1A (DET)	Max. Elevation	= 104.97 ft
Pond Name	= Basin 2	Max. Storage	= 17,096 cuft

Pond Routing by Storage Indication Method

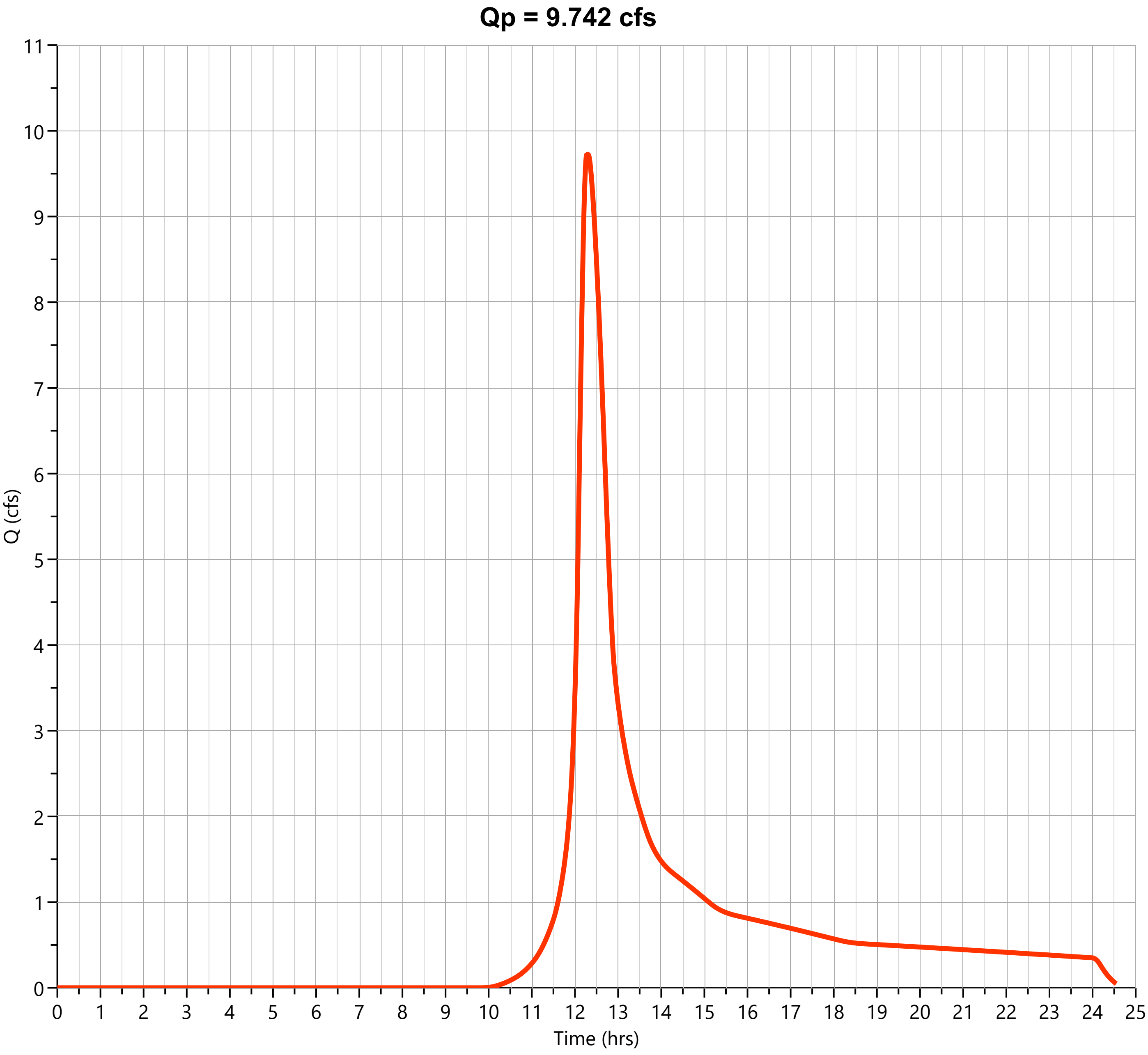
Center of mass detention time = 1.11 hrs



1B (UNDET) PERV

Hyd. No. 5

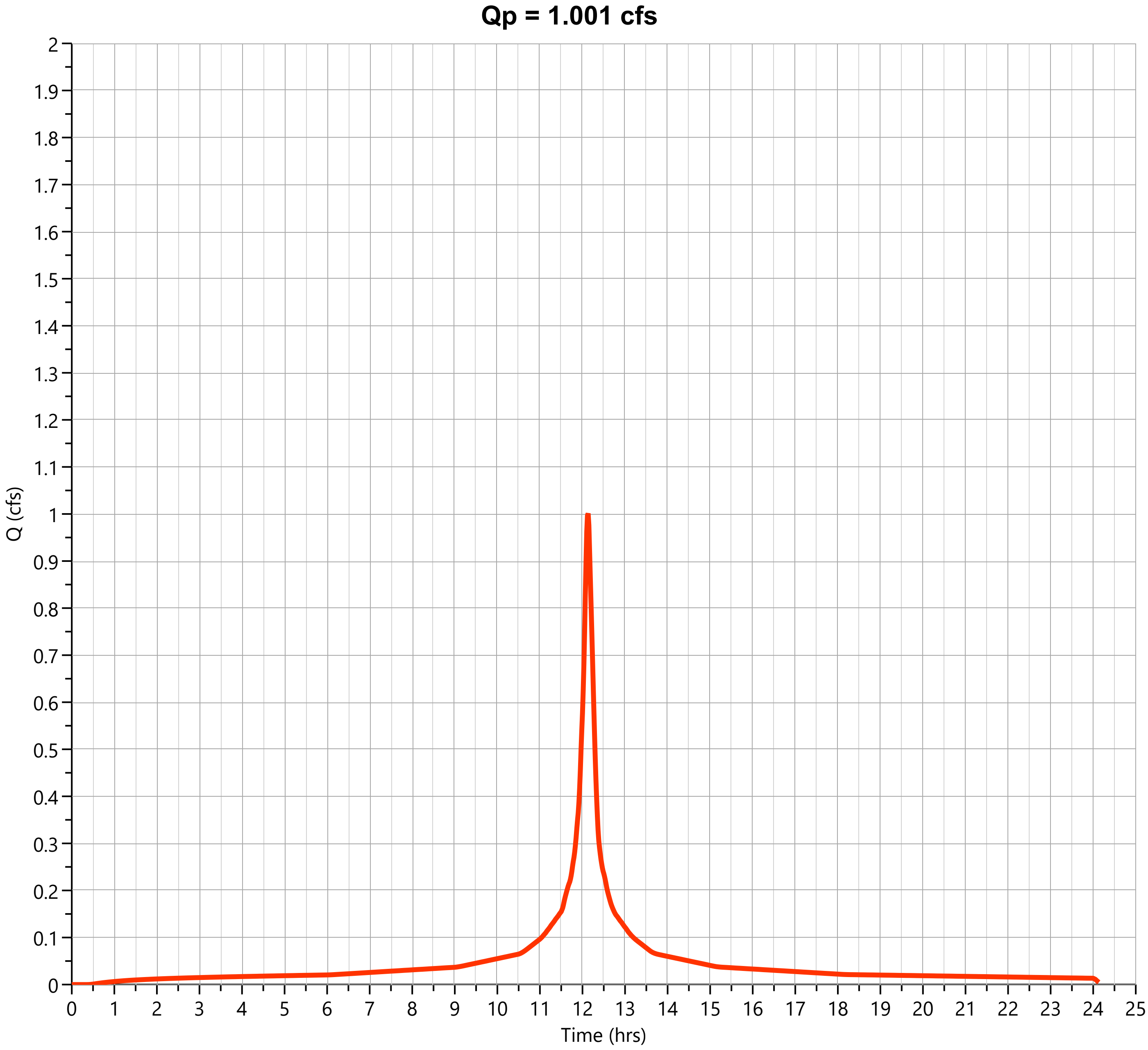
Hydrograph Type	= NRCS Runoff	Peak Flow	= 9.742 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.30 hrs
Time Interval	= 1 min	Runoff Volume	= 59,208 cuft
Drainage Area	= 3.92 ac	Curve Number	= 49.00
Tc Method	= User	Time of Conc. (Tc)	= 17.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1B (UNDET) IMP

Hyd. No. 6

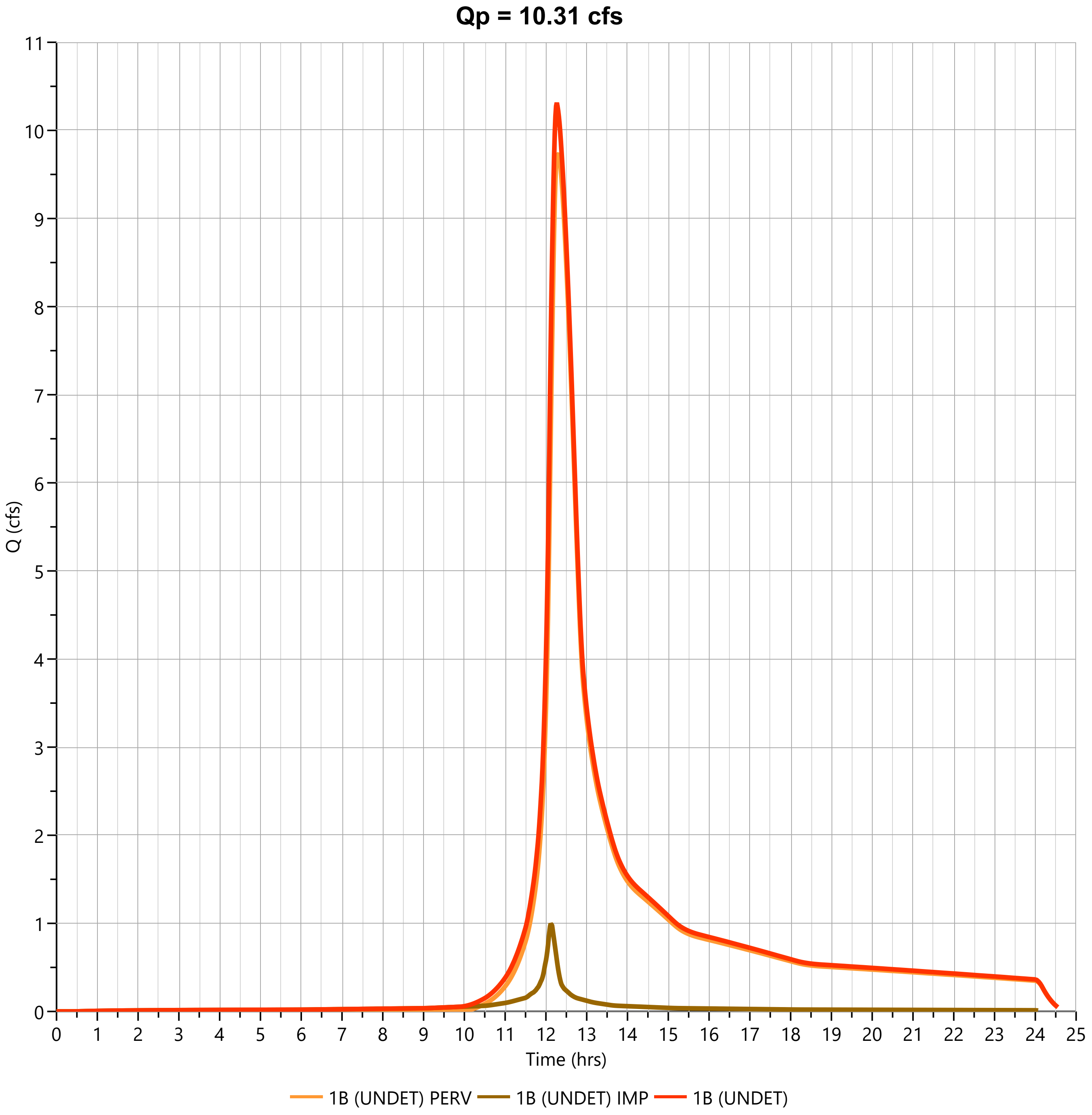
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.001 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 1 min	Runoff Volume	= 4,279 cuft
Drainage Area	= 0.11 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



1B (UNDET)

Hyd. No. 7

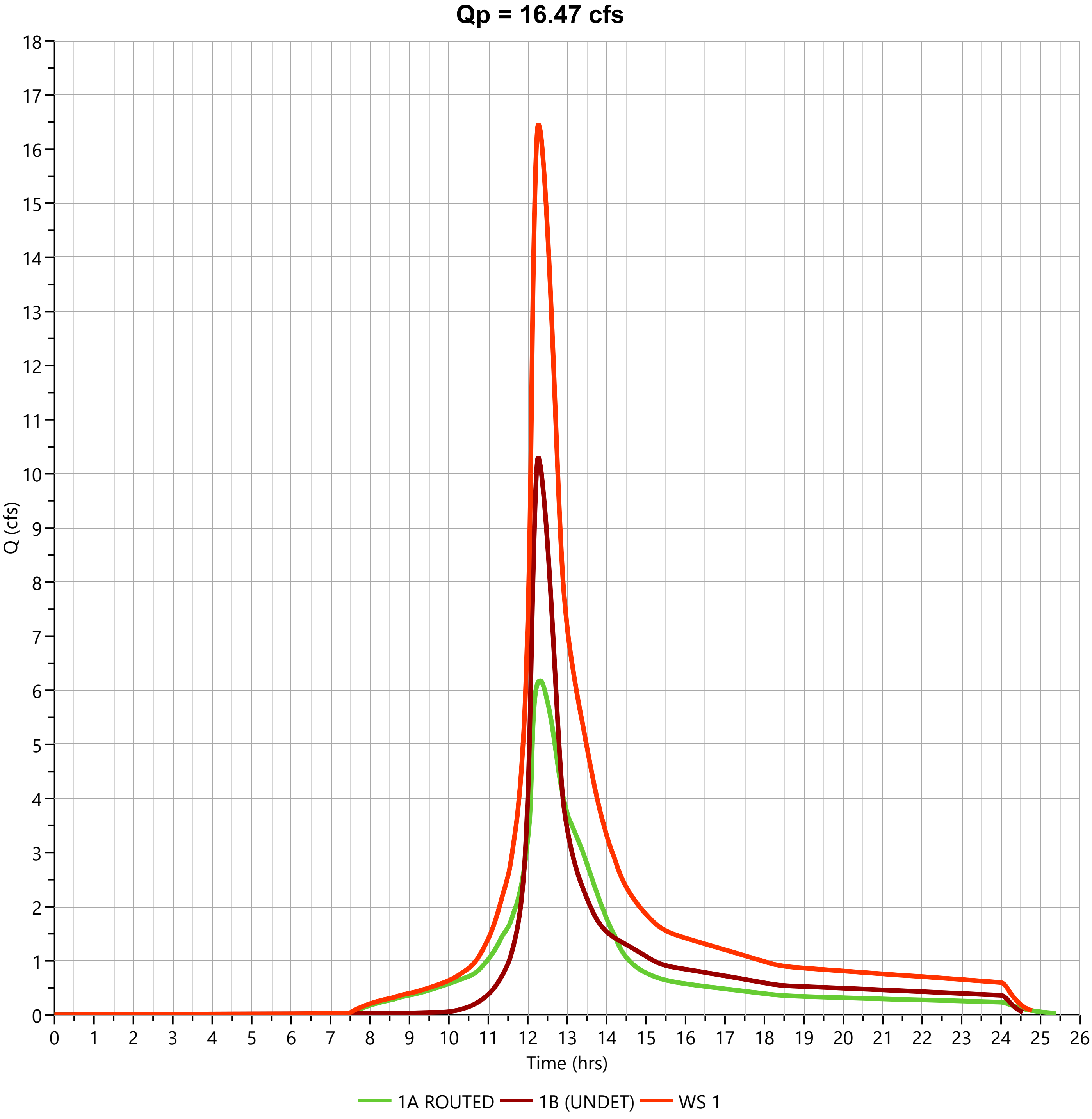
Hydrograph Type	= Junction	Peak Flow	= 10.31 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.27 hrs
Time Interval	= 1 min	Hydrograph Volume	= 63,486 cuft
Inflow Hydrographs	= 5, 6	Total Contrib. Area	= 4.03 ac



WS 1

Hyd. No. 8

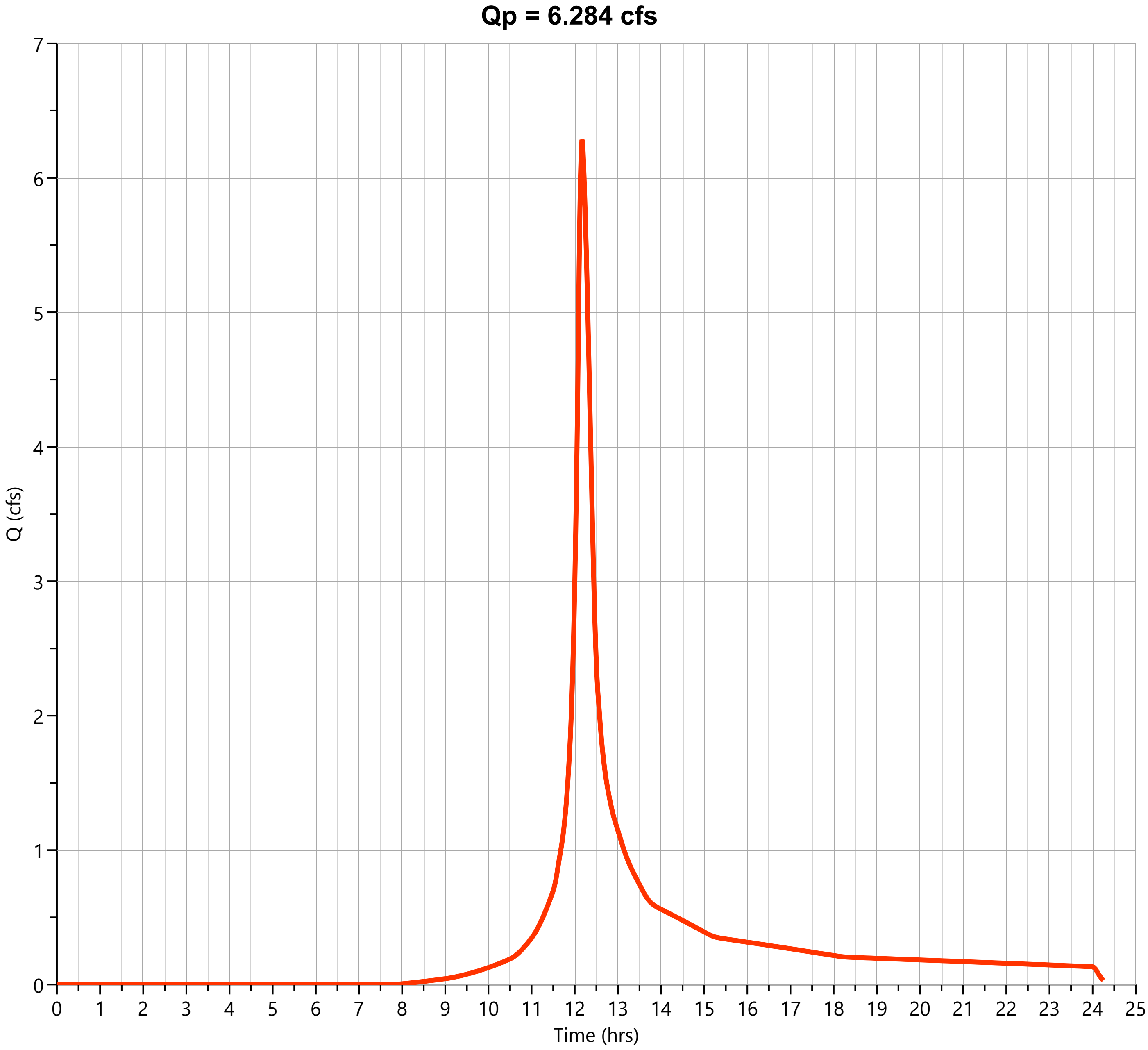
Hydrograph Type	= Junction	Peak Flow	= 16.47 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.27 hrs
Time Interval	= 1 min	Hydrograph Volume	= 120,761 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



2A (DET) PERV

Hyd. No. 9

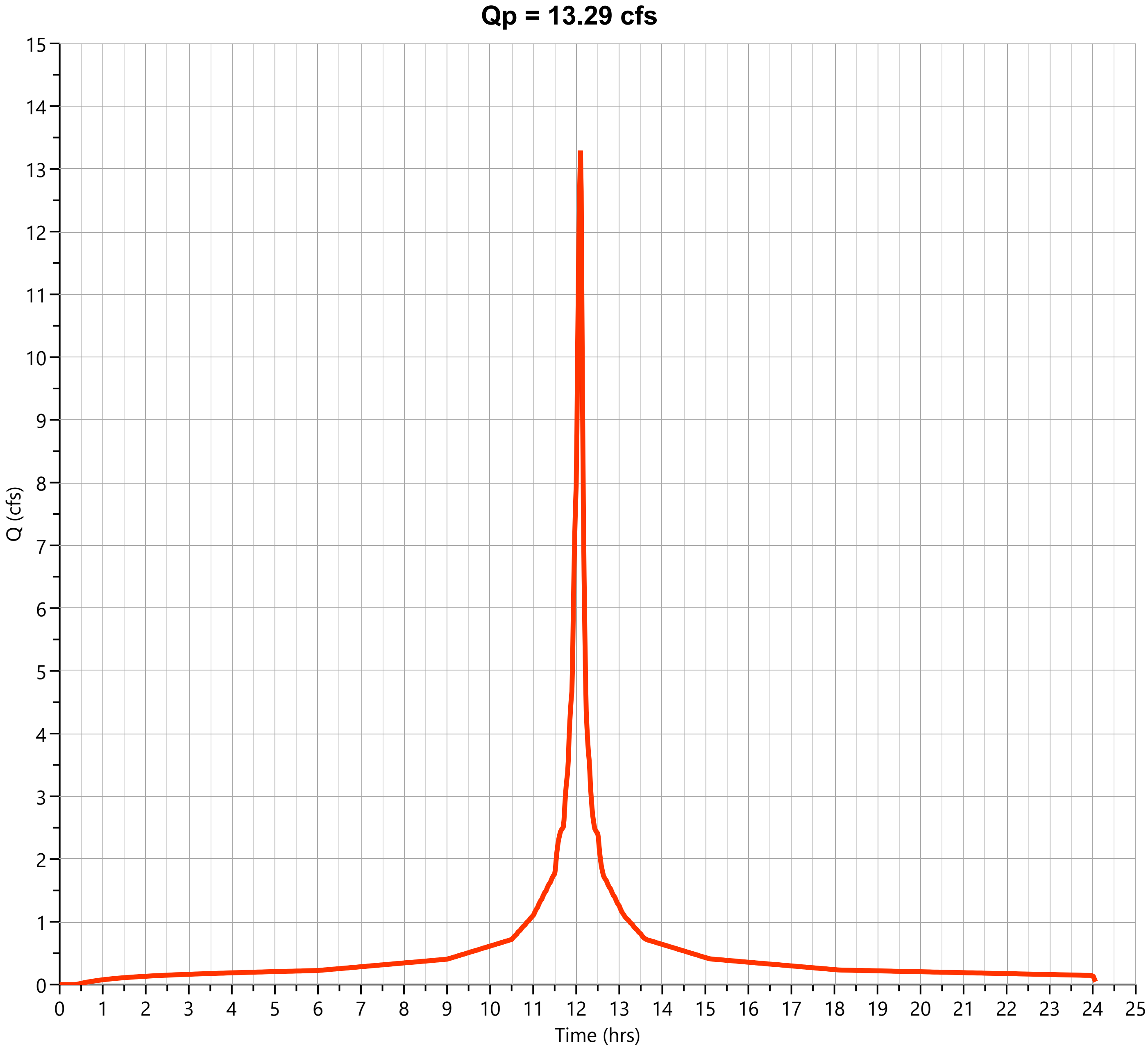
Hydrograph Type	= NRCS Runoff	Peak Flow	= 6.284 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 1 min	Runoff Volume	= 26,978 cuft
Drainage Area	= 1.3 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 9.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2A (DET) IMP

Hyd. No. 10

Hydrograph Type	= NRCS Runoff	Peak Flow	= 13.29 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 46,676 cuft
Drainage Area	= 1.2 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284

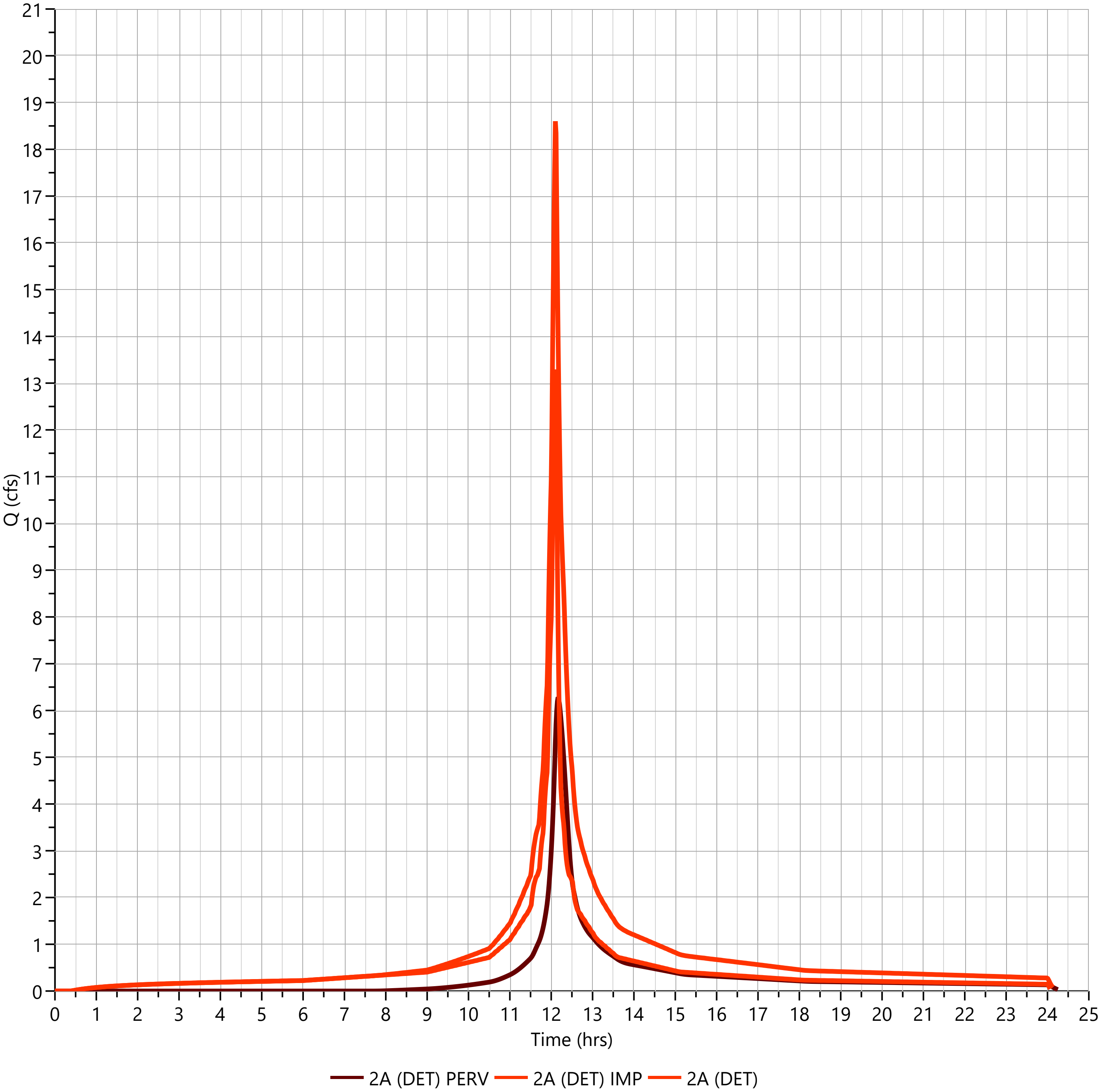


2A (DET)

Hyd. No. 11

Hydrograph Type	= Junction	Peak Flow	= 18.60 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 73,654 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 2.5 ac

Qp = 18.60 cfs



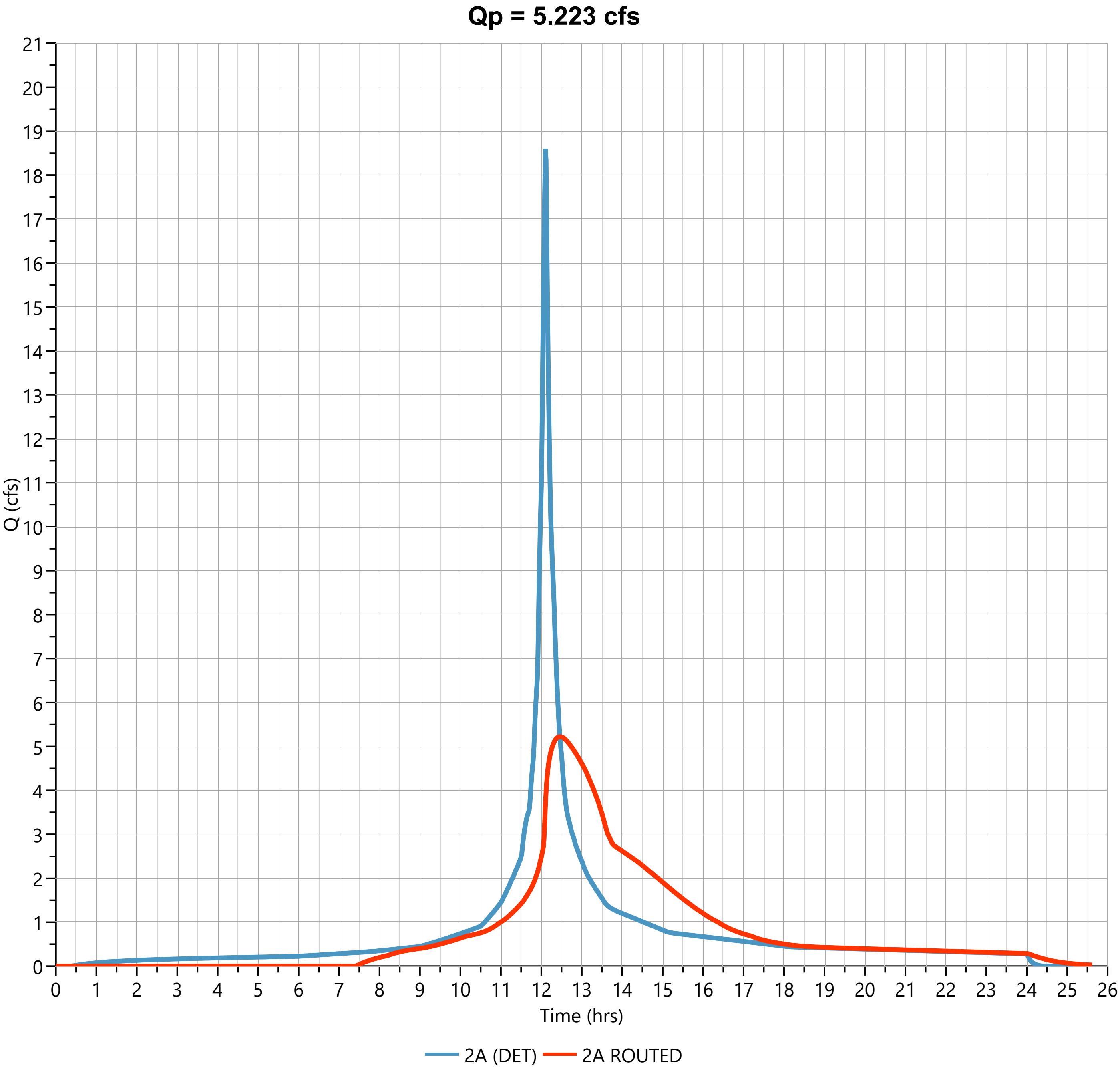
2A ROUTED

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 5.223 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.47 hrs
Time Interval	= 1 min	Hydrograph Volume	= 69,156 cuft
Inflow Hydrograph	= 11 - 2A (DET)	Max. Elevation	= 106.45 ft
Pond Name	= Basin 1	Max. Storage	= 24,324 cuft

Pond Routing by Storage Indication Method

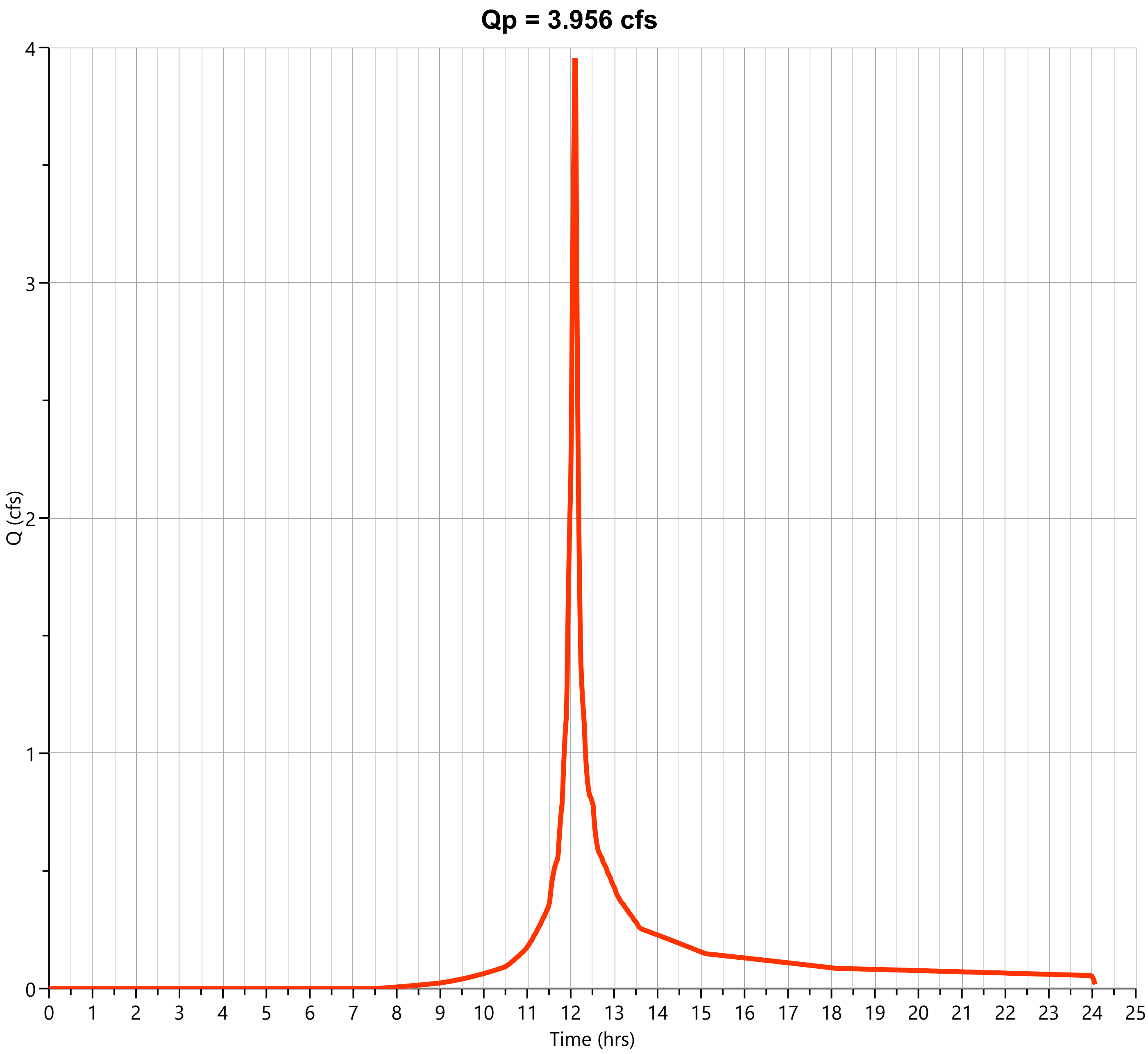
Center of mass detention time = 1.34 hrs



2B (DET) PERV

Hyd. No. 13

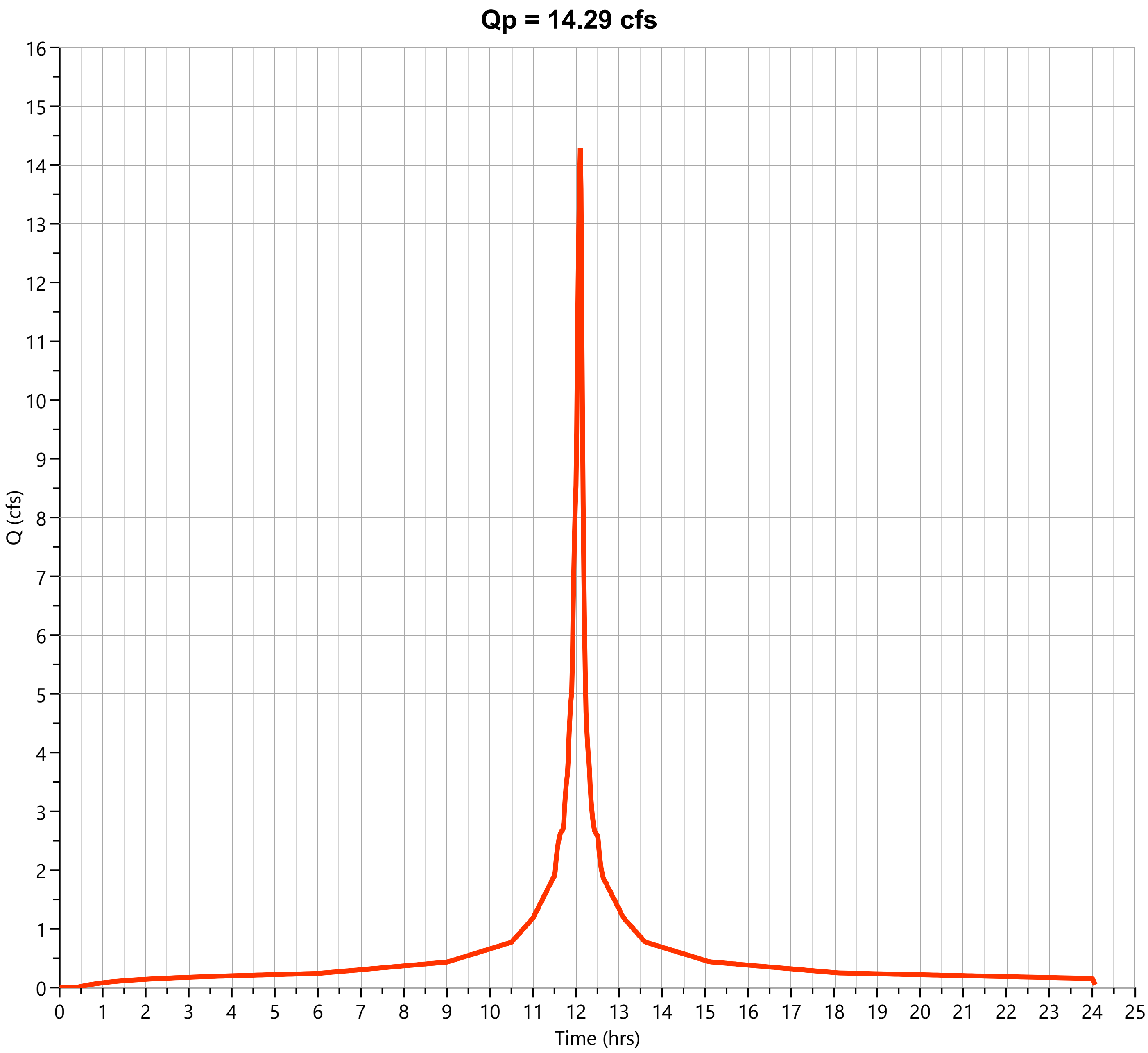
Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.956 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 11,485 cuft
Drainage Area	= 0.54 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 2.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2B (DET) IMP

Hyd. No. 14

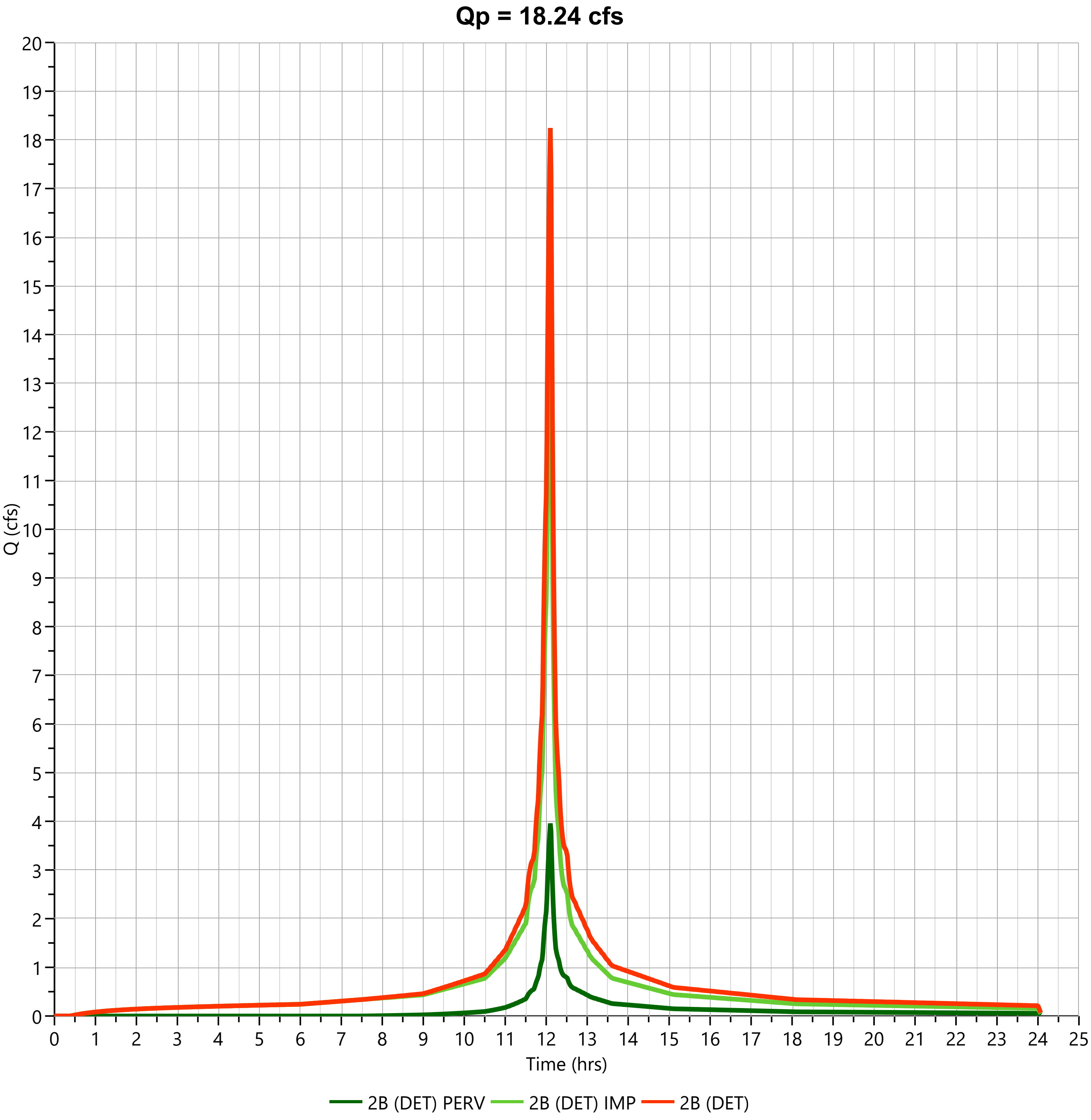
Hydrograph Type	= NRCS Runoff	Peak Flow	= 14.29 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Runoff Volume	= 50,177 cuft
Drainage Area	= 1.29 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2B (DET)

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 18.24 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 1 min	Hydrograph Volume	= 61,662 cuft
Inflow Hydrographs	= 13, 14	Total Contrib. Area	= 1.83 ac



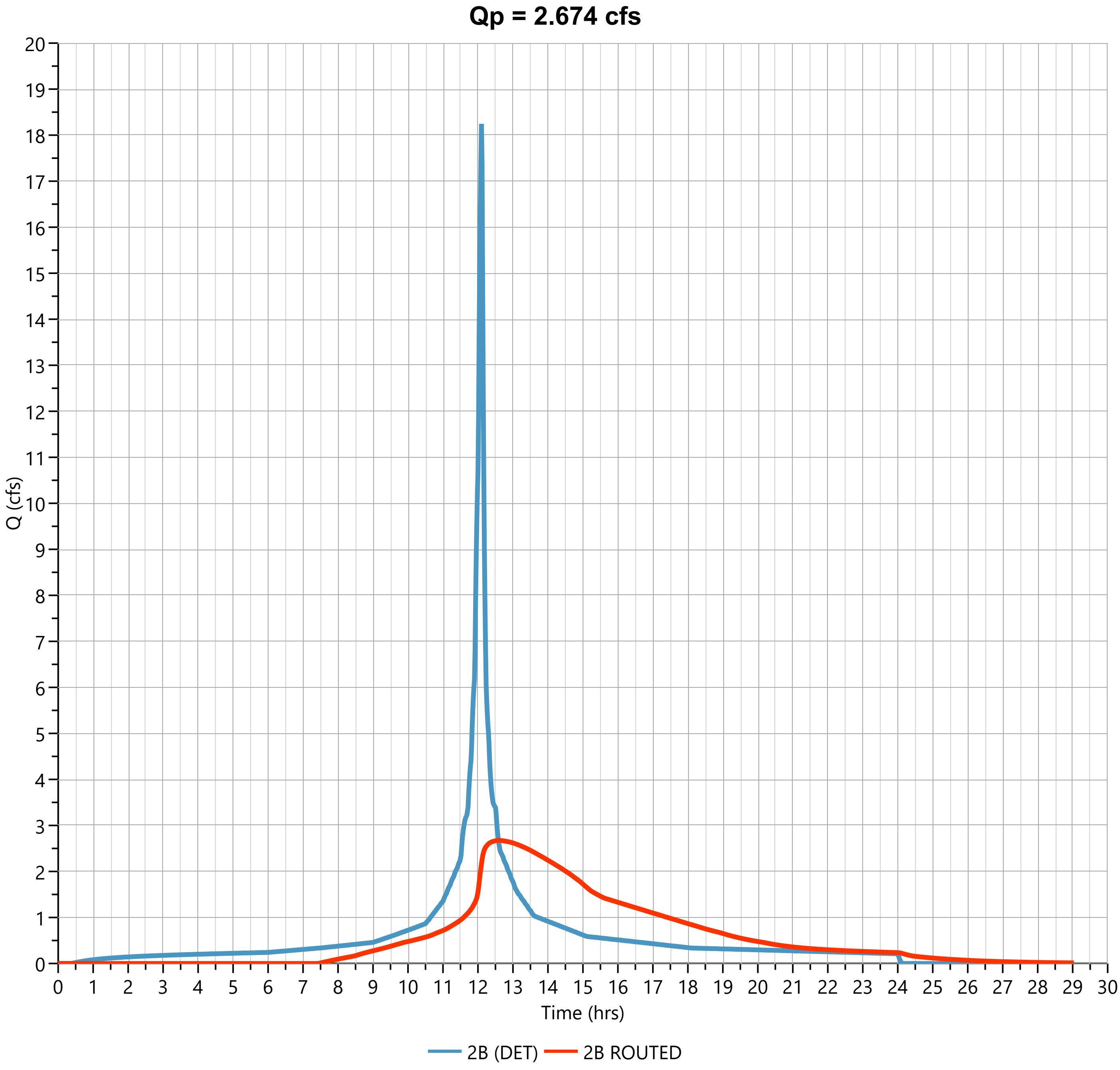
2B ROUTED

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 2.674 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.58 hrs
Time Interval	= 1 min	Hydrograph Volume	= 56,805 cuft
Inflow Hydrograph	= 15 - 2B (DET)	Max. Elevation	= 104.97 ft
Pond Name	= Basin 3	Max. Storage	= 27,324 cuft

Pond Routing by Storage Indication Method

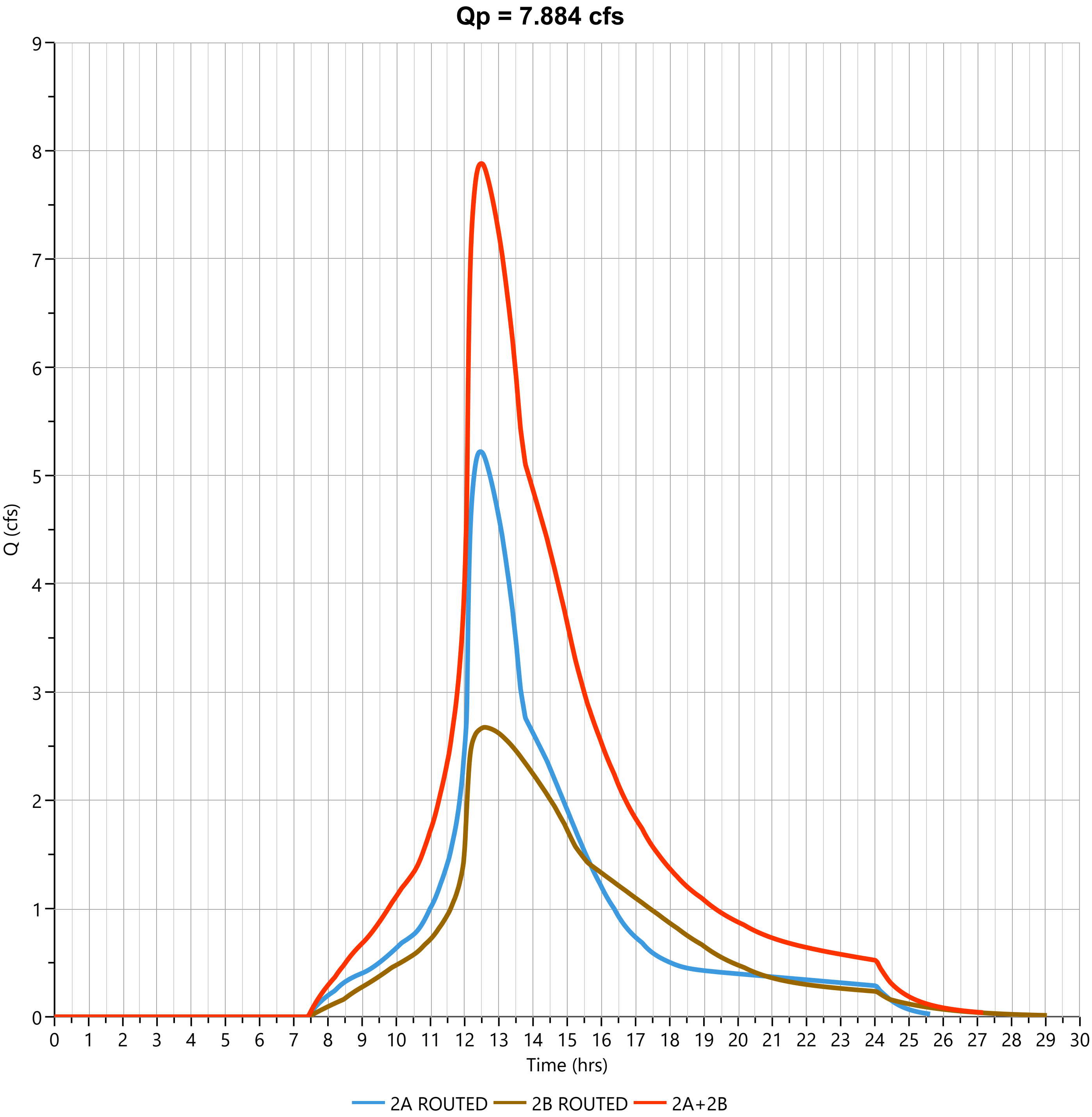
Center of mass detention time = 2.54 hrs



2A+2B

Hyd. No. 17

Hydrograph Type	= Junction	Peak Flow	= 7.884 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.48 hrs
Time Interval	= 1 min	Hydrograph Volume	= 125,961 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac

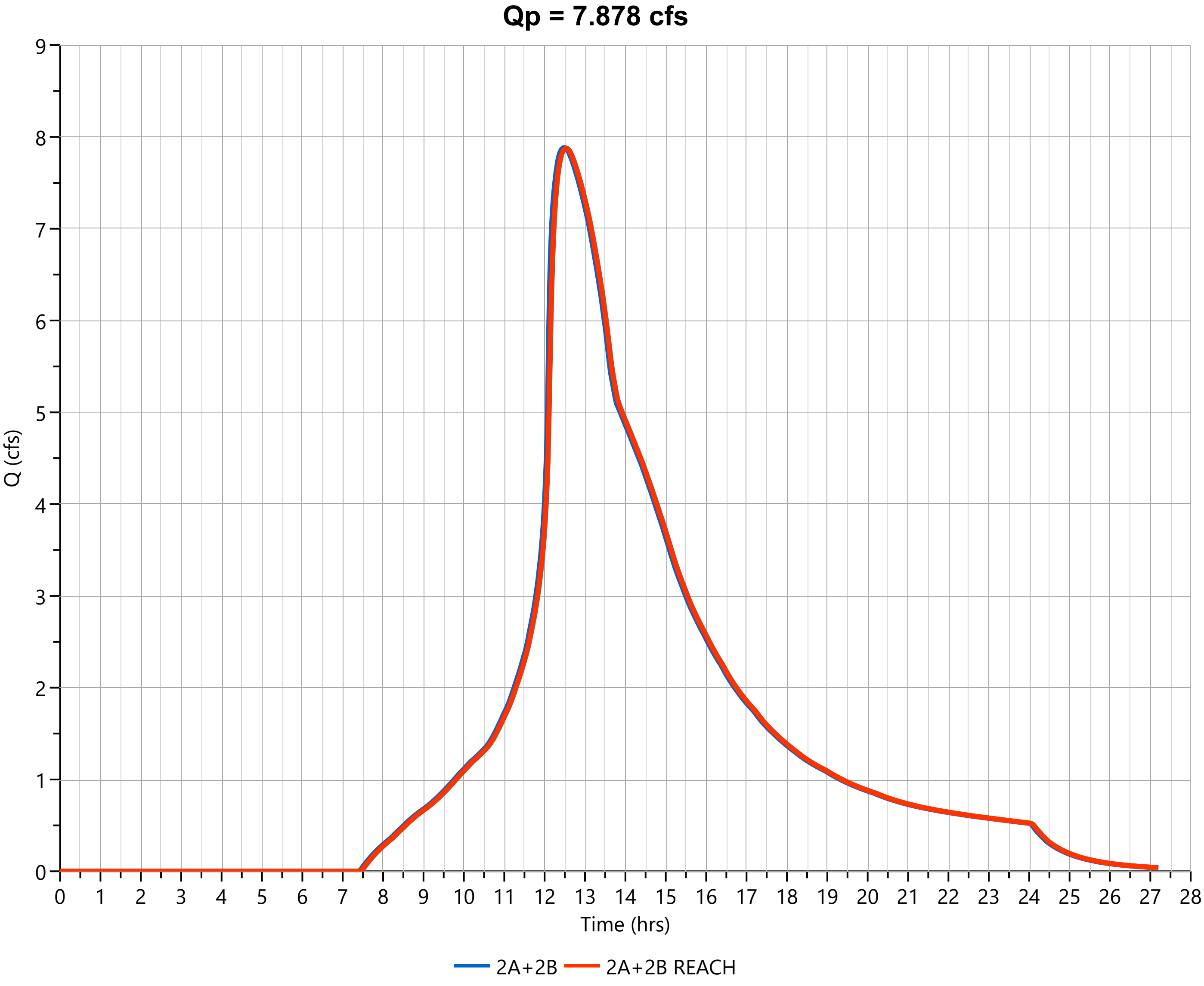


2A+2B REACH

Hyd. No. 18

Hydrograph Type	= Reach	Peak Flow	= 7.878 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.53 hrs
Time Interval	= 1 min	Hydrograph Volume	= 125,901 cuft
Inflow Hydrograph	= 17 - 2A+2B	Section Type	= Circular
Reach Length	= 435 ft	Channel Slope	= 0.50 %
Manning's n	= 0.012	Pipe Diameter	= 2.00 ft
Side Slope (h:v)	= n/a	Maximum Depth	= n/a
Rating Curve X	= 5.318	Average Velocity	= 2.51 ft/s
Rating Curve m	= 1.250	Routing Coeff.	= 0.3557

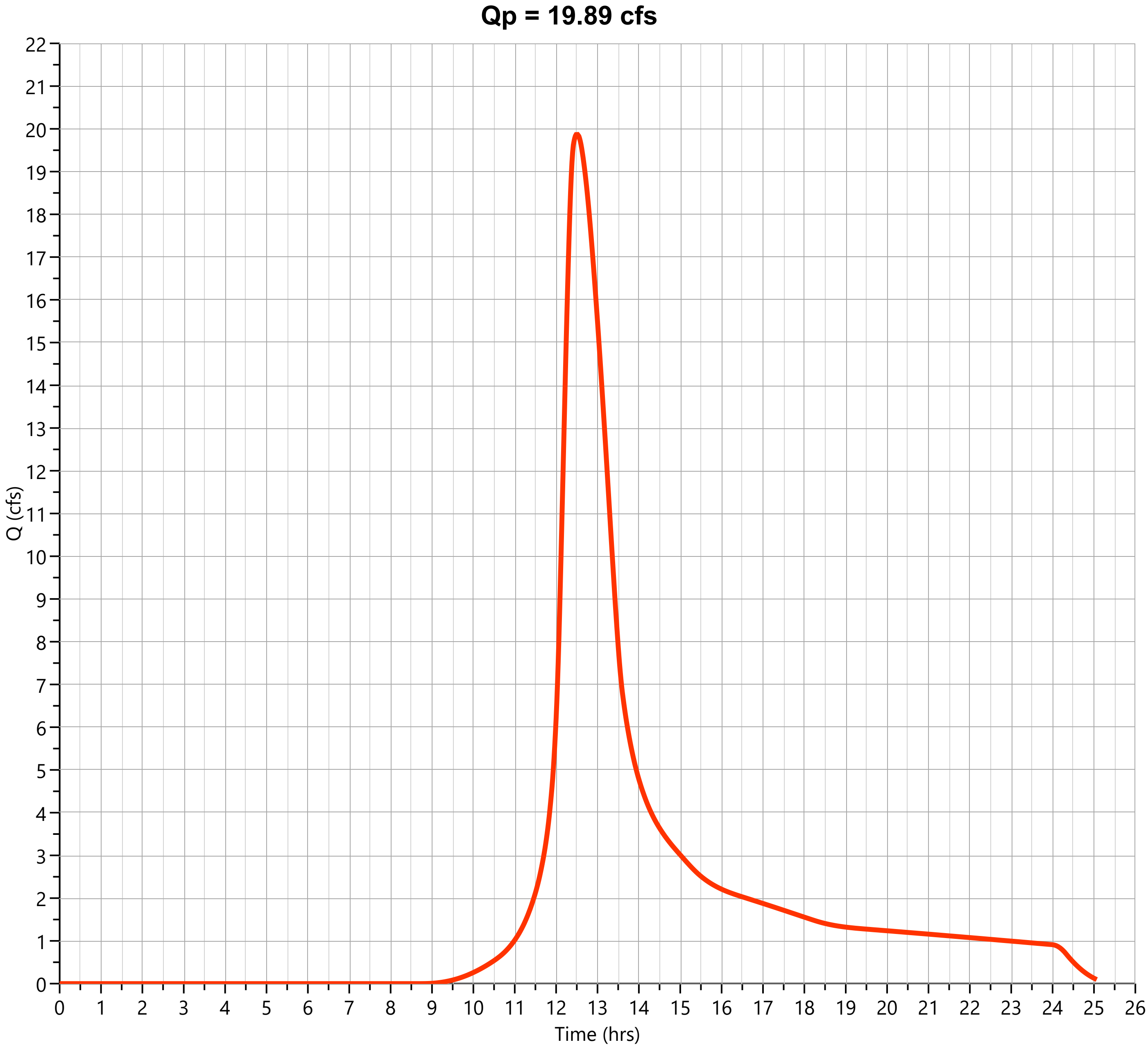
Modified Att-Kin routing method



2C (UNDET) PERV

Hyd. No. 19

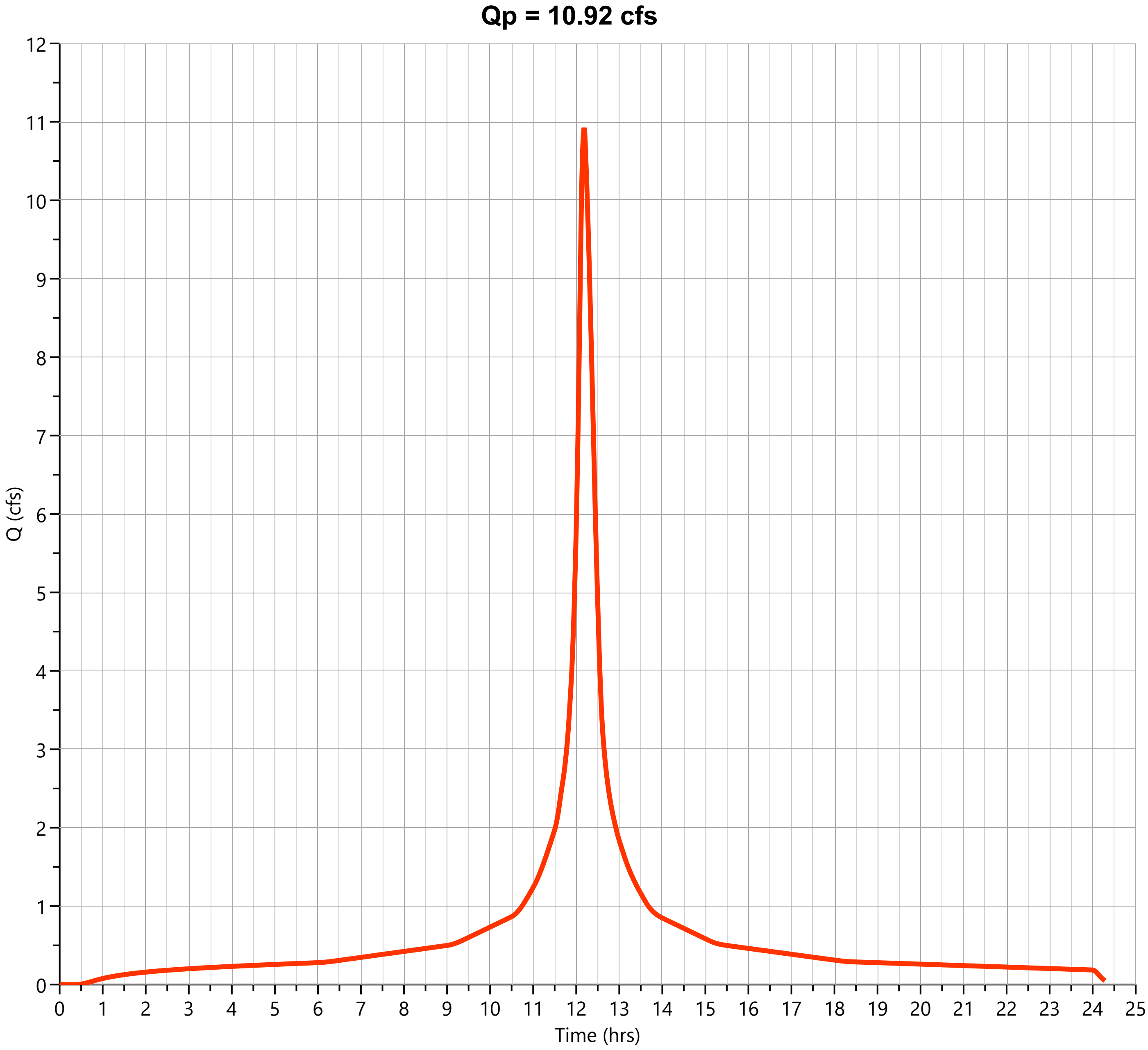
Hydrograph Type	= NRCS Runoff	Peak Flow	= 19.89 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.50 hrs
Time Interval	= 1 min	Runoff Volume	= 165,428 cuft
Drainage Area	= 9.02 ac	Curve Number	= 55.00
Tc Method	= User	Time of Conc. (Tc)	= 33.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2C (UNDET) IMP

Hyd. No. 20

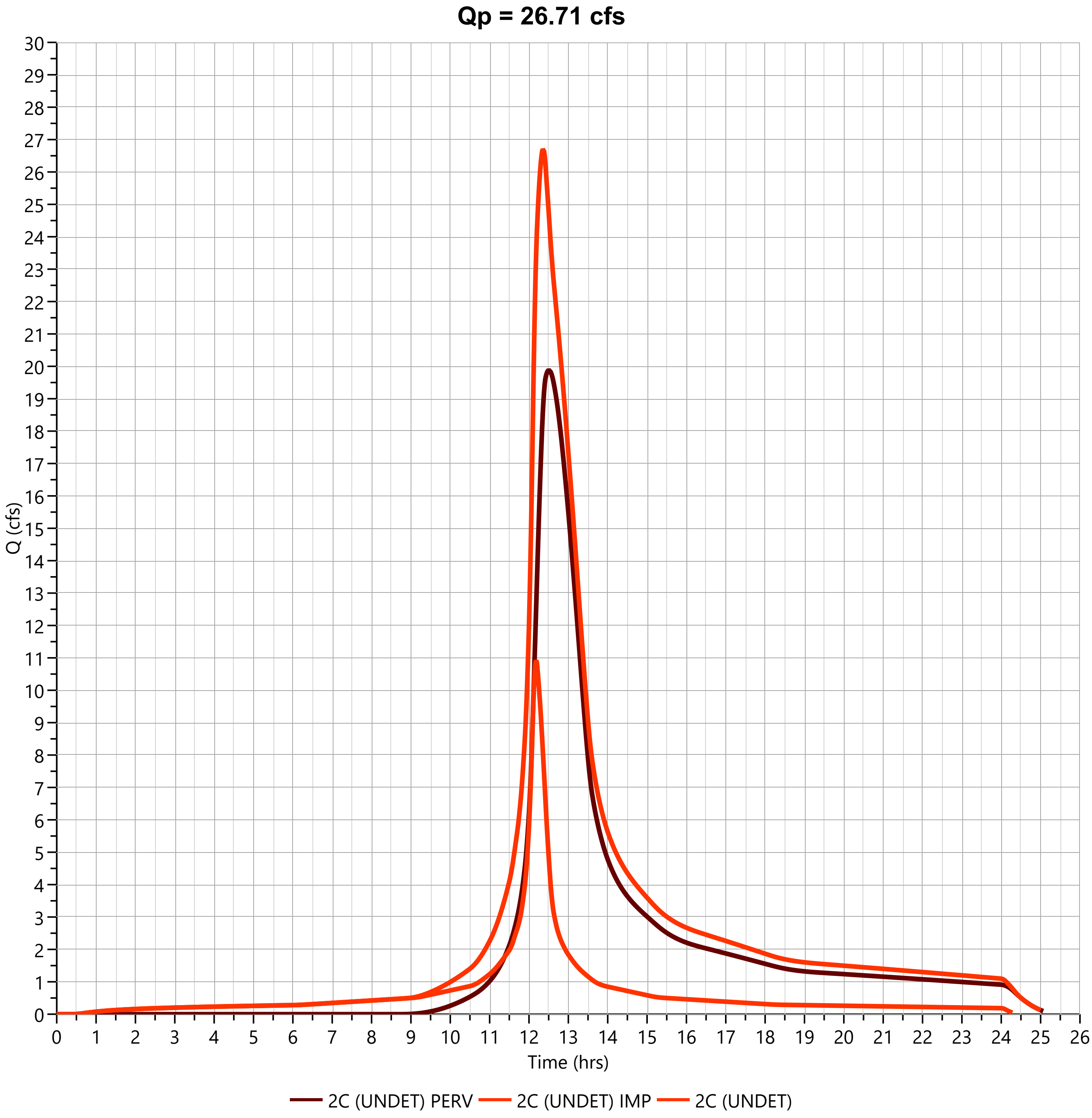
Hydrograph Type	= NRCS Runoff	Peak Flow	= 10.92 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.18 hrs
Time Interval	= 1 min	Runoff Volume	= 58,876 cuft
Drainage Area	= 1.49 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 11.06 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 284



2C (UNDET)

Hyd. No. 21

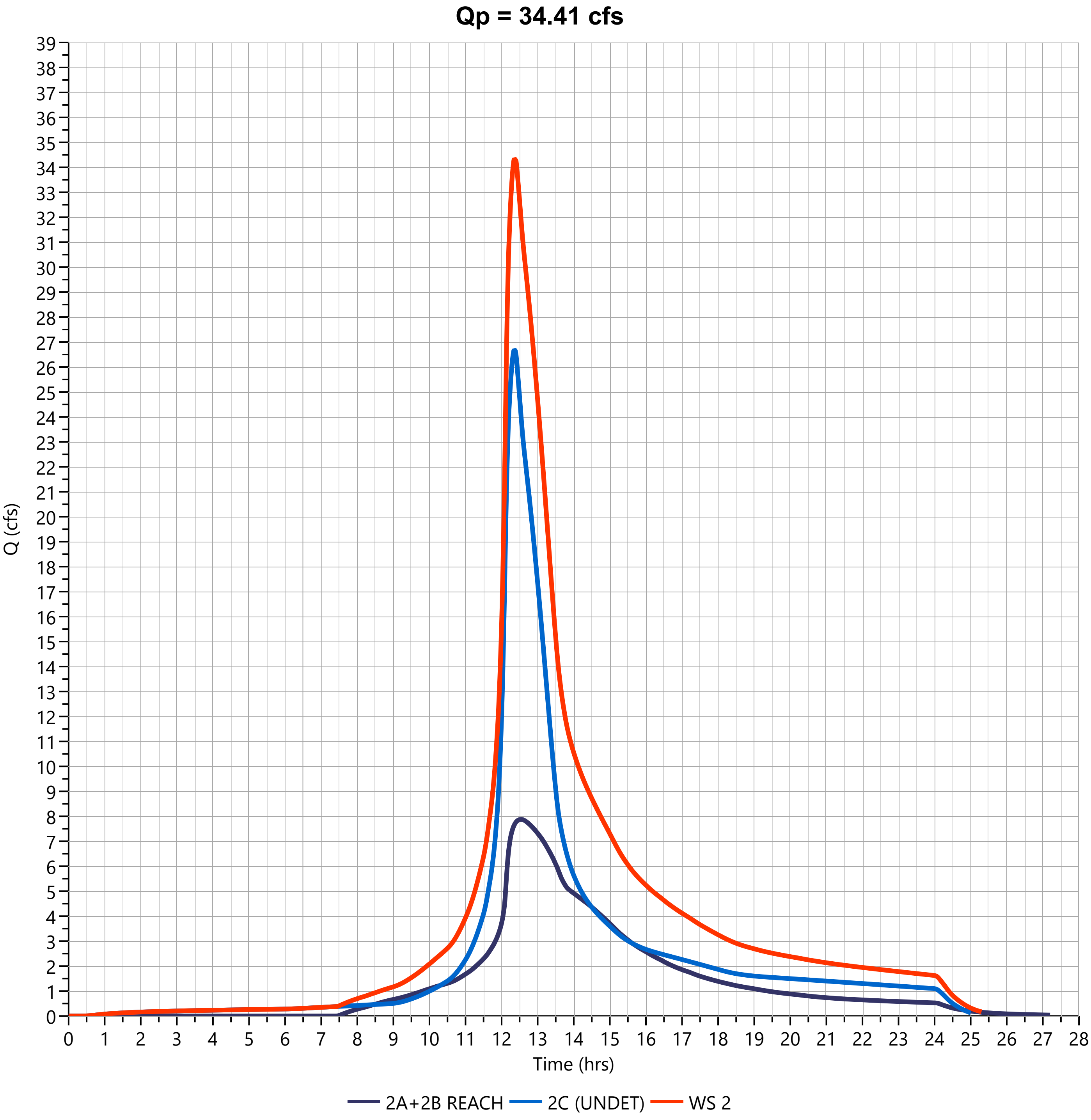
Hydrograph Type	= Junction	Peak Flow	= 26.71 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.37 hrs
Time Interval	= 1 min	Hydrograph Volume	= 224,304 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 10.51 ac



WS 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 34.41 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.37 hrs
Time Interval	= 1 min	Hydrograph Volume	= 350,206 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



PROPOSED RUNOFF HYDROGRAPHS
WATER QUALITY STORM

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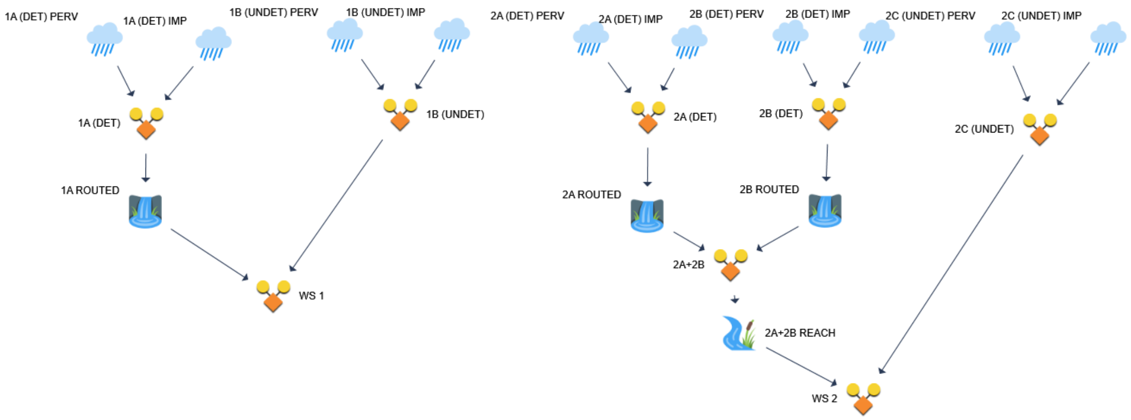
Basin Model


1A (DET) PERV
1A (DET) IMP
1B (UNDET) PERV
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Hydrograph by Return Period

Hydrology Studio v 3.0.0.44

File: 102054601 - Proposed.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	1A (DET) PERV		0.000						
2	NRCS Runoff	1A (DET) IMP		3.411						
3	Junction	1A (DET)		3.411						
4	Pond Route	1A ROUTED		0.000						
5	NRCS Runoff	1B (UNDET) PERV		0.000						
6	NRCS Runoff	1B (UNDET) IMP		0.285						
7	Junction	1B (UNDET)		0.285						
8	Junction	WS 1		0.285						
9	NRCS Runoff	2A (DET) PERV		0.000						
10	NRCS Runoff	2A (DET) IMP		3.623						
11	Junction	2A (DET)		3.623						
12	Pond Route	2A ROUTED		0.000						
13	NRCS Runoff	2B (DET) PERV		0.000						
14	NRCS Runoff	2B (DET) IMP		3.894						
15	Junction	2B (DET)		3.894						
16	Pond Route	2B ROUTED		0.000						
17	Junction	2A+2B		0.000						
18	Reach	2A+2B REACH		0.000						
19	NRCS Runoff	2C (UNDET) PERV		0.000						
20	NRCS Runoff	2C (UNDET) IMP		2.961						
21	Junction	2C (UNDET)		2.961						
22	Junction	WS 2		2.961						

Hydrograph 2-yr Summary

Hydrology Studio v 3.0.0.44

File: 102054601 - Proposed.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (min)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	1A (DET) PERV	0.000	0	0.000	----		
2	NRCS Runoff	1A (DET) IMP	3.411	65	4,202	----		
3	Junction	1A (DET)	3.411	65	4,202	1, 2		
4	Pond Route	1A ROUTED	0.000	0	0.000	3	103.19	4,202
5	NRCS Runoff	1B (UNDET) PERV	0.000	0	0.000	----		
6	NRCS Runoff	1B (UNDET) IMP	0.285	67	409	----		
7	Junction	1B (UNDET)	0.285	67	409	5, 6		
8	Junction	WS 1	0.285	67	409	4, 7		
9	NRCS Runoff	2A (DET) PERV	0.000	0	0.000	----		
10	NRCS Runoff	2A (DET) IMP	3.623	65	4,462	----		
11	Junction	2A (DET)	3.623	65	4,462	9, 10		
12	Pond Route	2A ROUTED	0.000	0	0.000	11	103.79	4,462
13	NRCS Runoff	2B (DET) PERV	0.000	0	0.000	----		
14	NRCS Runoff	2B (DET) IMP	3.894	65	4,797	----		
15	Junction	2B (DET)	3.894	65	4,797	13, 14		
16	Pond Route	2B ROUTED	0.000	0	0.000	15	102.99	4,797
17	Junction	2A+2B	0.000	0	0.000	12, 16		
18	Reach	2A+2B REACH	0.000	0	0.000	17		
19	NRCS Runoff	2C (UNDET) PERV	0.000	0	0.000	----		
20	NRCS Runoff	2C (UNDET) IMP	2.961	70	5,629	----		
21	Junction	2C (UNDET)	2.961	70	5,629	19, 20		
22	Junction	WS 2	2.961	70	5,629	18, 21		

1A (DET) PERV

Hyd. No. 1

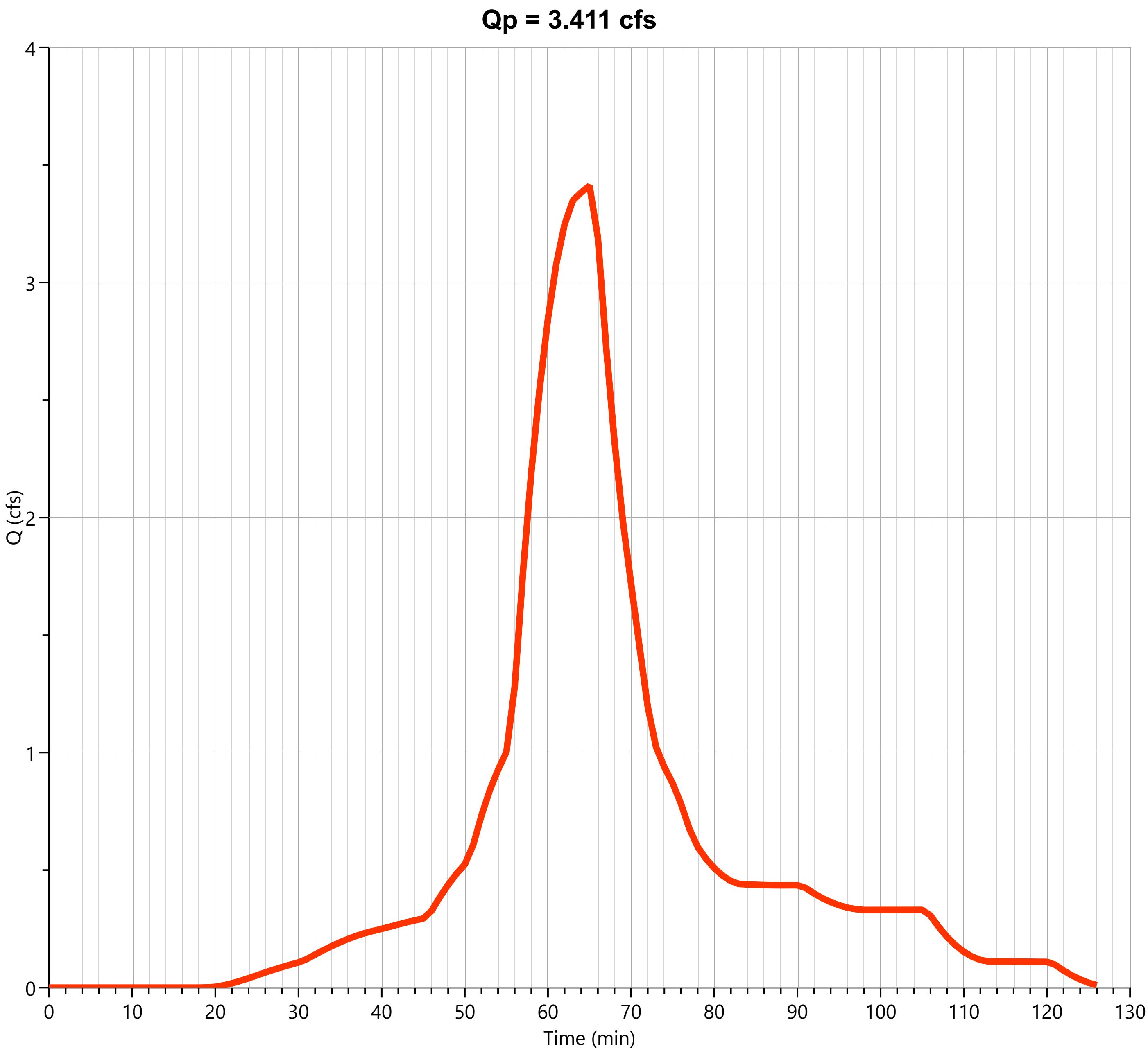
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.81 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 9.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284

Qp = 0.000 cfs

1A (DET) IMP

Hyd. No. 2

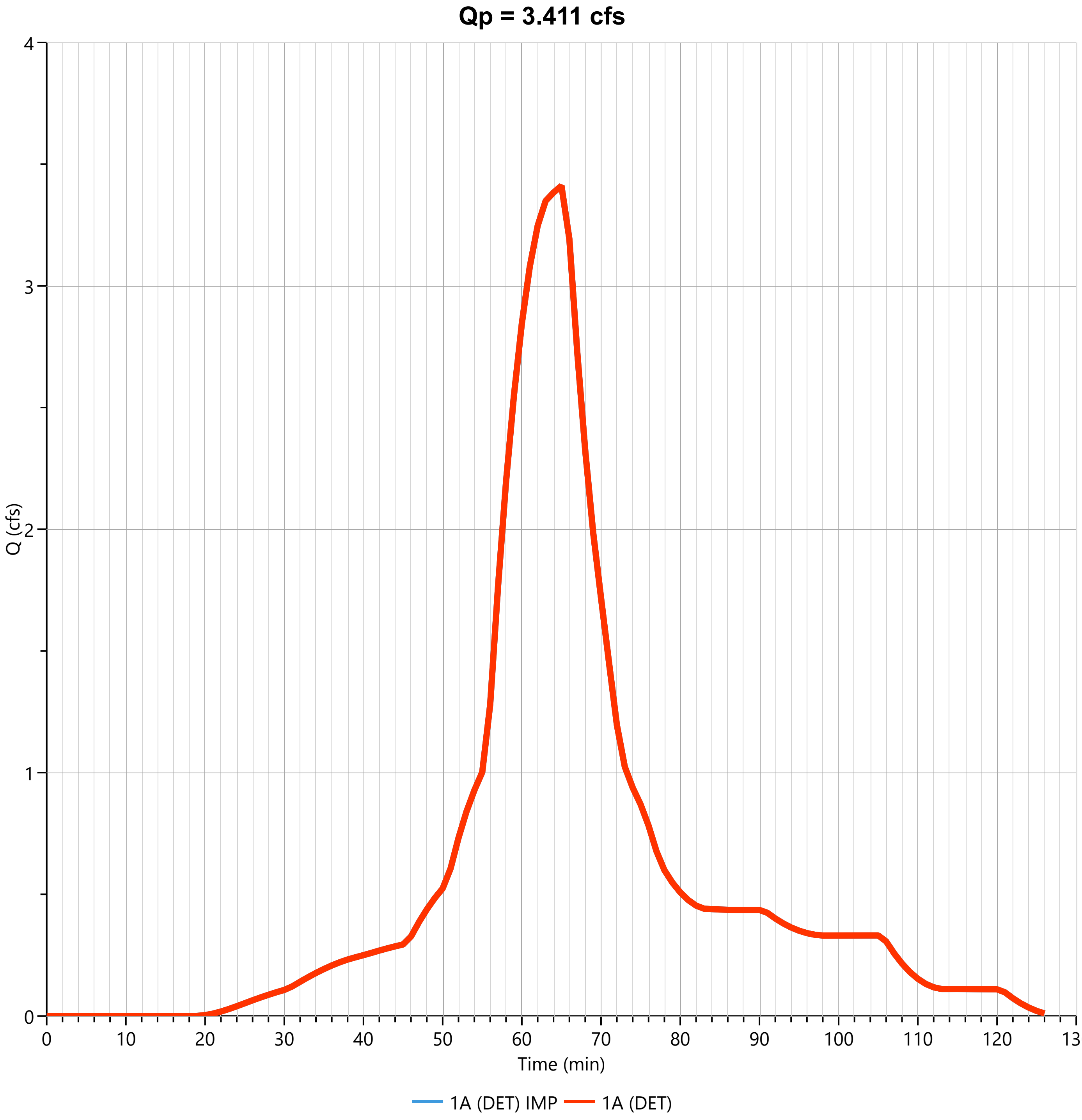
Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.411 cfs
Storm Frequency	= 2-yr	Time to Peak	= 65 min
Time Interval	= 1 min	Runoff Volume	= 4,202 cuft
Drainage Area	= 1.13 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284



1A (DET)

Hyd. No. 3

Hydrograph Type	= Junction	Peak Flow	= 3.411 cfs
Storm Frequency	= 2-yr	Time to Peak	= 65 min
Time Interval	= 1 min	Hydrograph Volume	= 4,202 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.94 ac



1A ROUTED

Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 3 - 1A (DET)	Max. Elevation	= 103.19 ft
Pond Name	= Basin 2	Max. Storage	= 4,202 cuft

Pond Routing by Storage Indication Method

Qp = 0.000 cfs

1B (UNDET) PERV

Hyd. No. 5

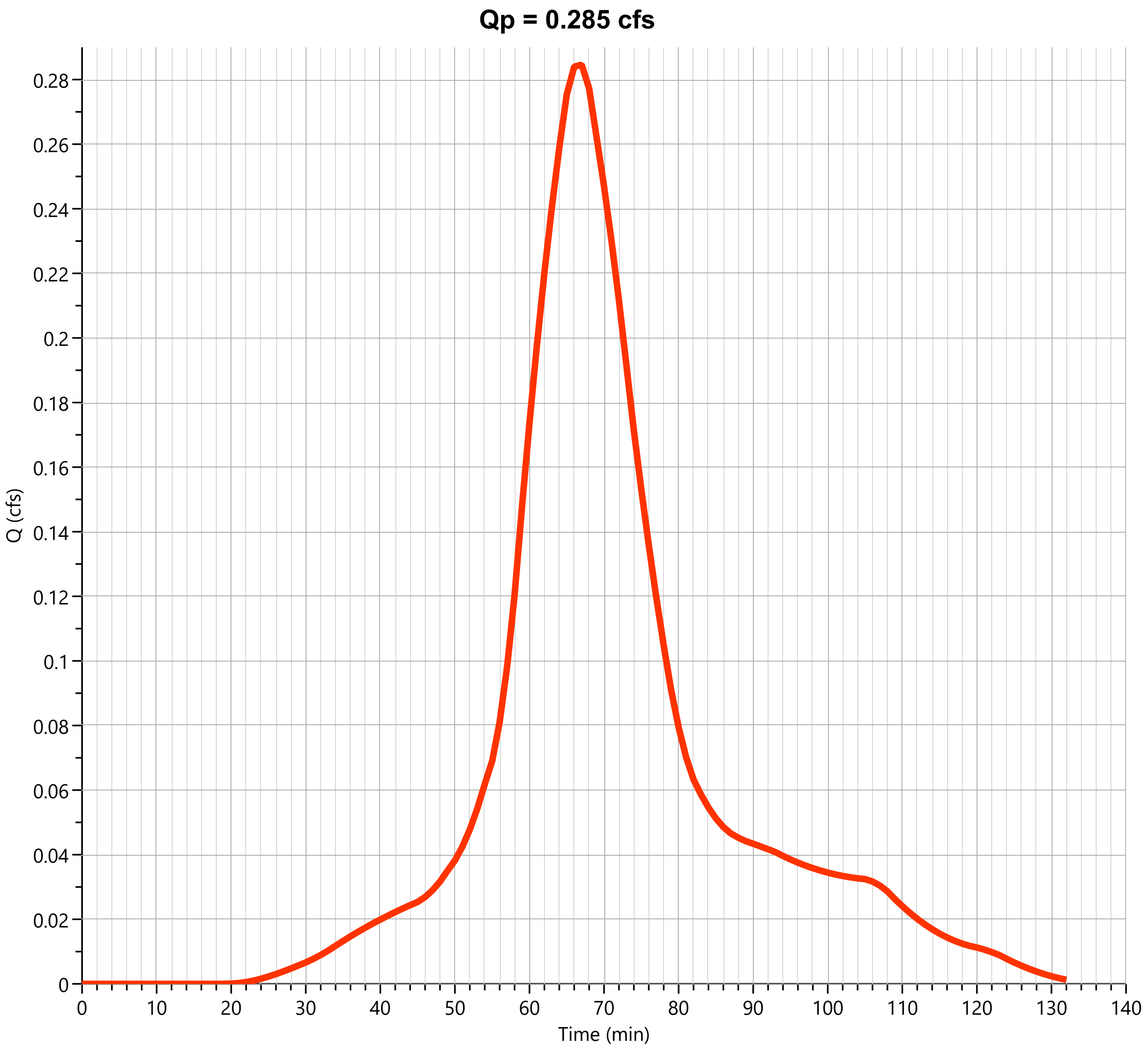
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 3.92 ac	Curve Number	= 49.00
Tc Method	= User	Time of Conc. (Tc)	= 18.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284

Qp = 0.000 cfs

1B (UNDET) IMP

Hyd. No. 6

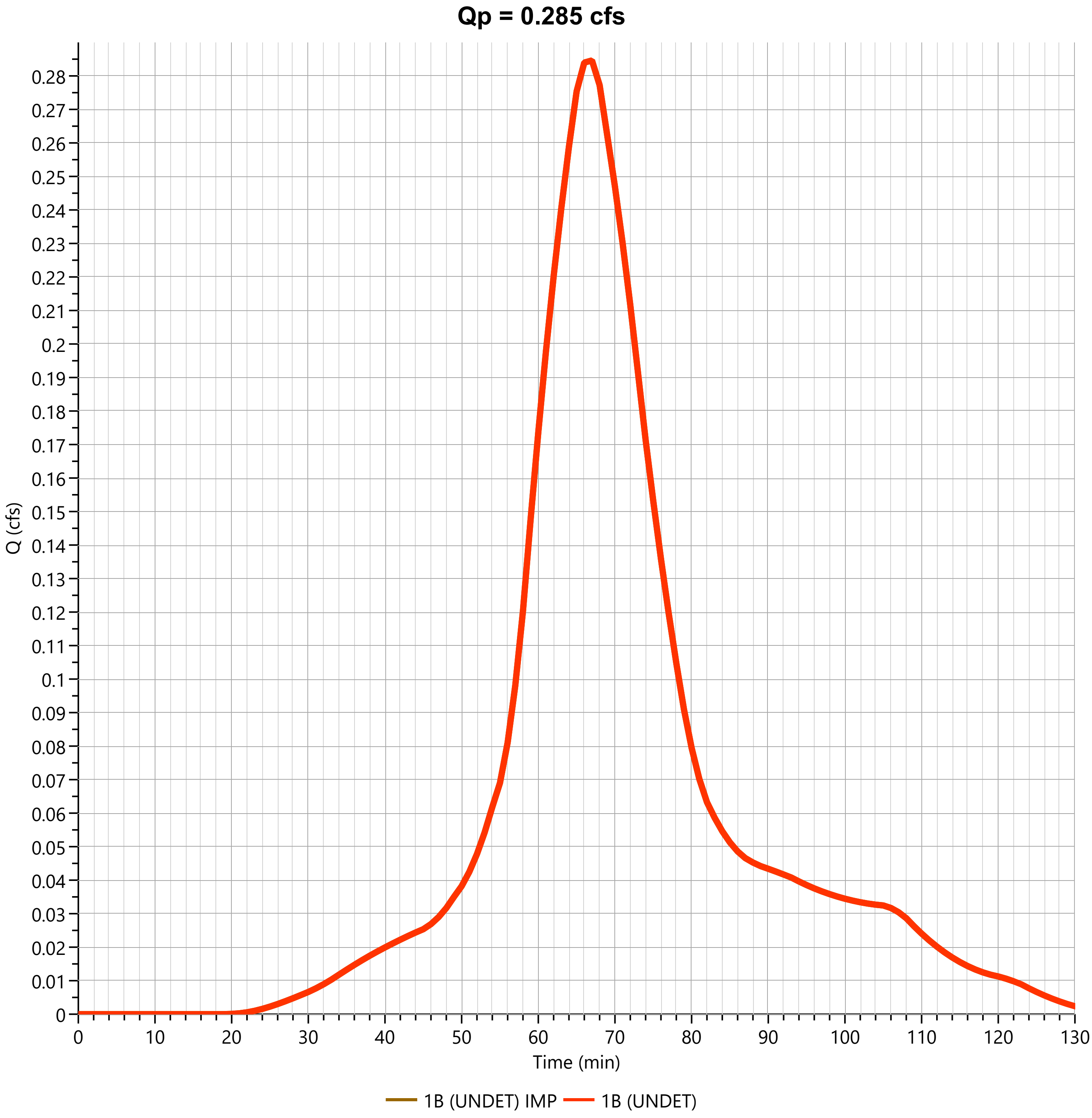
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.285 cfs
Storm Frequency	= 2-yr	Time to Peak	= 67 min
Time Interval	= 1 min	Runoff Volume	= 409 cuft
Drainage Area	= 0.11 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 5.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284



1B (UNDET)

Hyd. No. 7

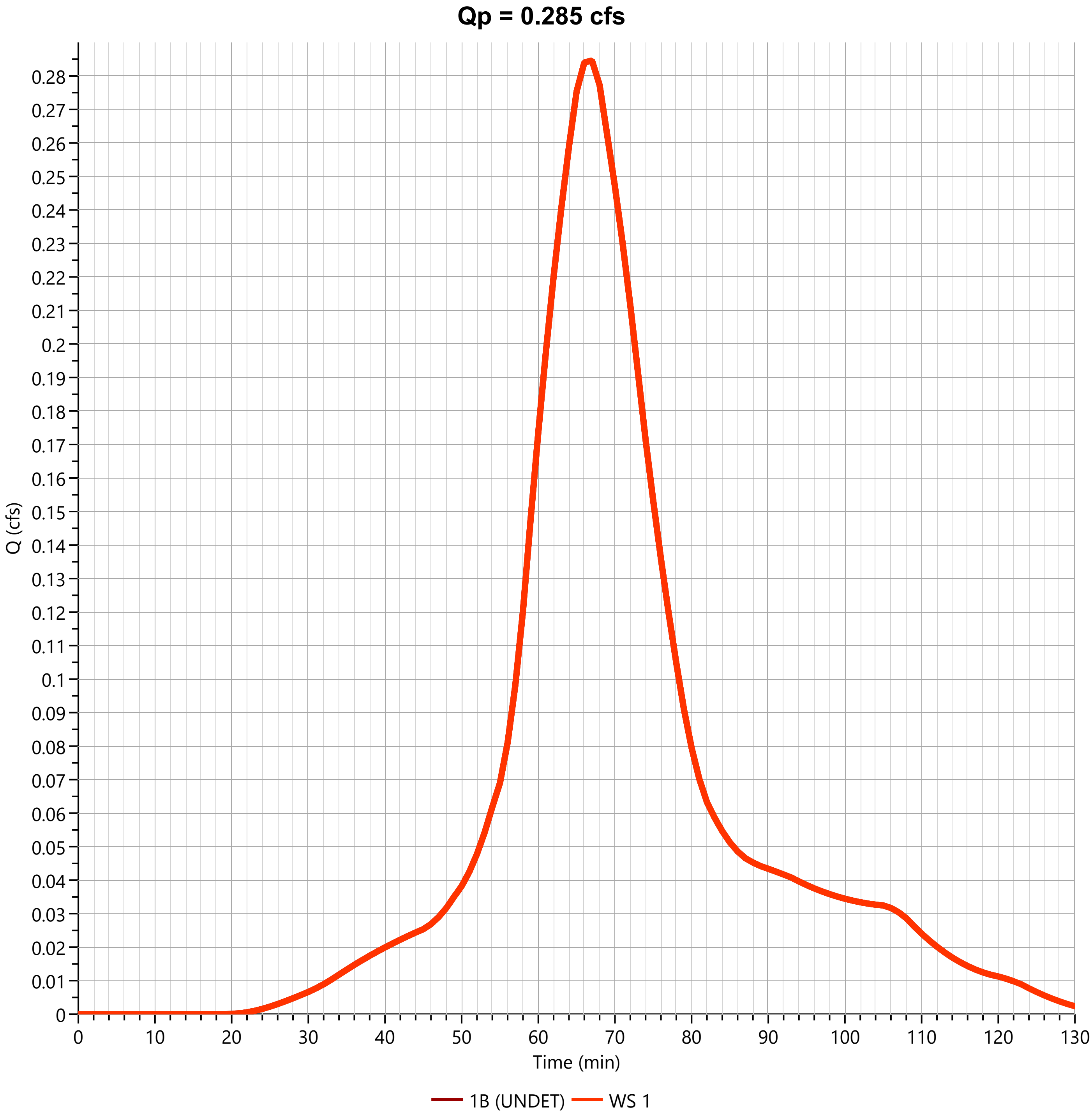
Hydrograph Type	= Junction	Peak Flow	= 0.285 cfs
Storm Frequency	= 2-yr	Time to Peak	= 67 min
Time Interval	= 1 min	Hydrograph Volume	= 409 cuft
Inflow Hydrographs	= 5, 6	Total Contrib. Area	= 4.03 ac



WS 1

Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 0.285 cfs
Storm Frequency	= 2-yr	Time to Peak	= 67 min
Time Interval	= 1 min	Hydrograph Volume	= 409 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac



2A (DET) PERV

Hyd. No. 9

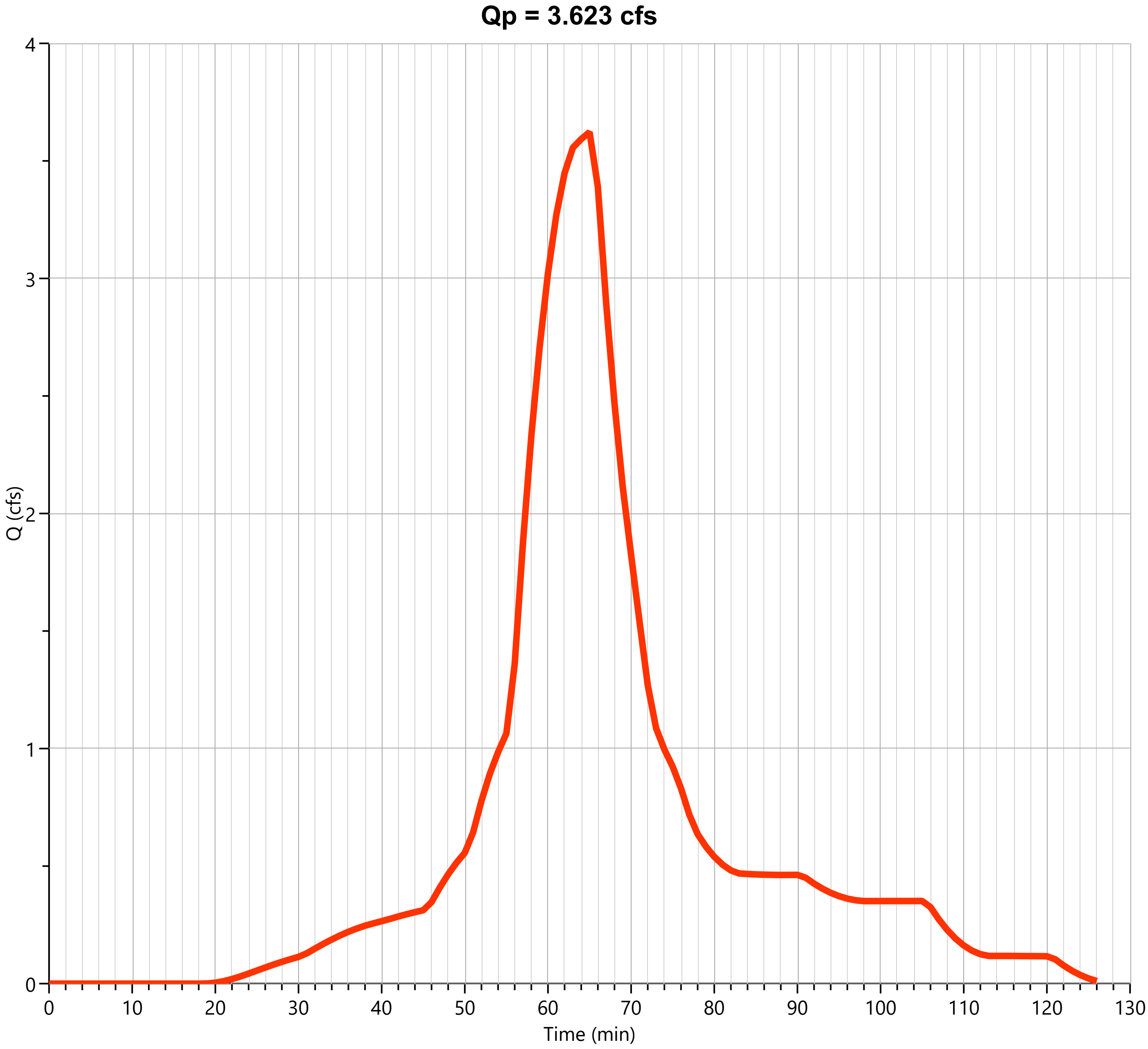
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 1.3 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284

Qp = 0.000 cfs

2A (DET) IMP

Hyd. No. 10

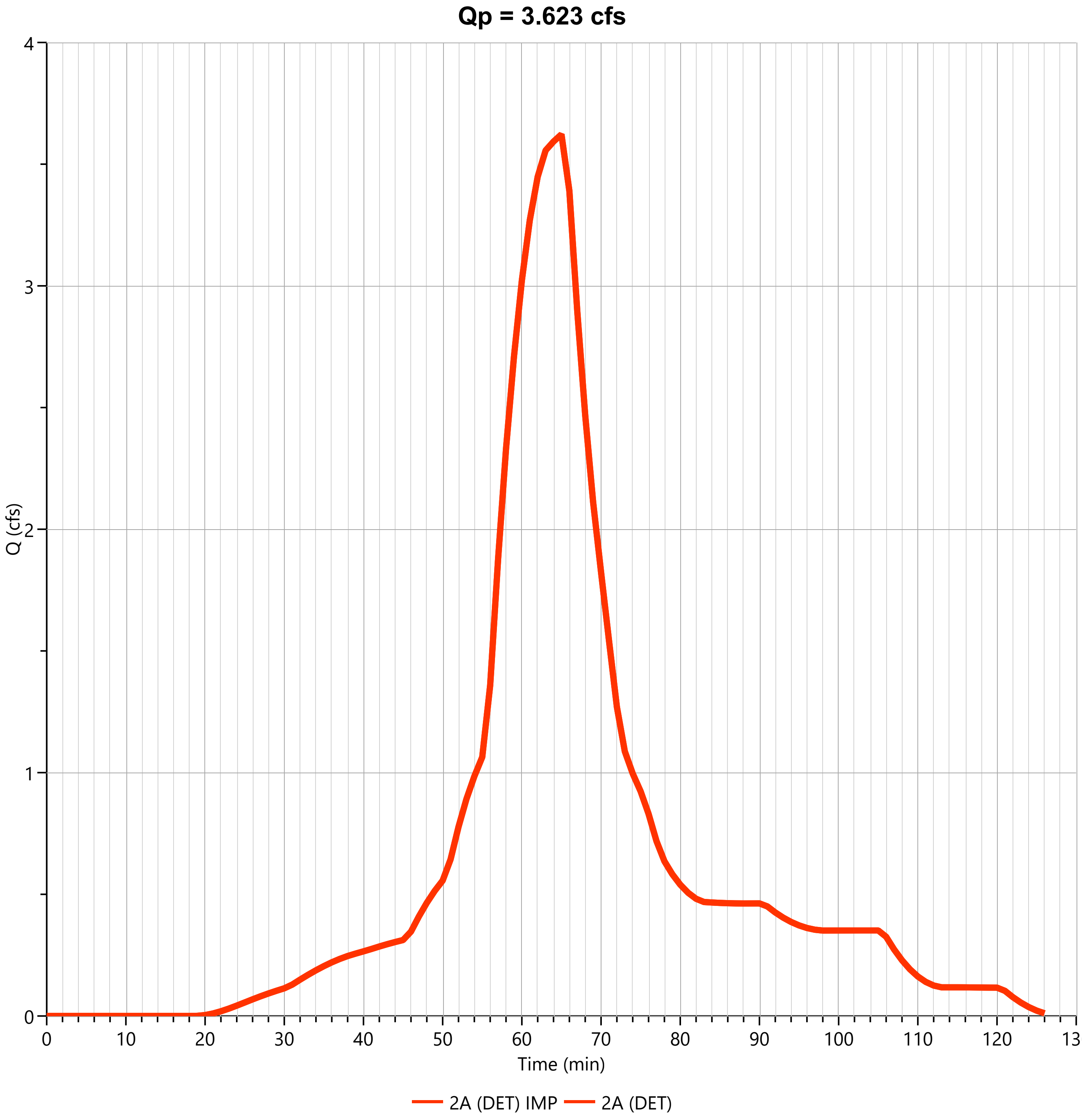
Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.623 cfs
Storm Frequency	= 2-yr	Time to Peak	= 65 min
Time Interval	= 1 min	Runoff Volume	= 4,462 cuft
Drainage Area	= 1.2 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284



2A (DET)

Hyd. No. 11

Hydrograph Type	= Junction	Peak Flow	= 3.623 cfs
Storm Frequency	= 2-yr	Time to Peak	= 65 min
Time Interval	= 1 min	Hydrograph Volume	= 4,462 cuft
Inflow Hydrographs	= 9, 10	Total Contrib. Area	= 2.5 ac



2A ROUTED

Hyd. No. 12

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 11 - 2A (DET)	Max. Elevation	= 103.79 ft
Pond Name	= Basin 1	Max. Storage	= 4,462 cuft

Pond Routing by Storage Indication Method

Qp = 0.000 cfs

2B (DET) PERV

Hyd. No. 13

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.54 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 2.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284

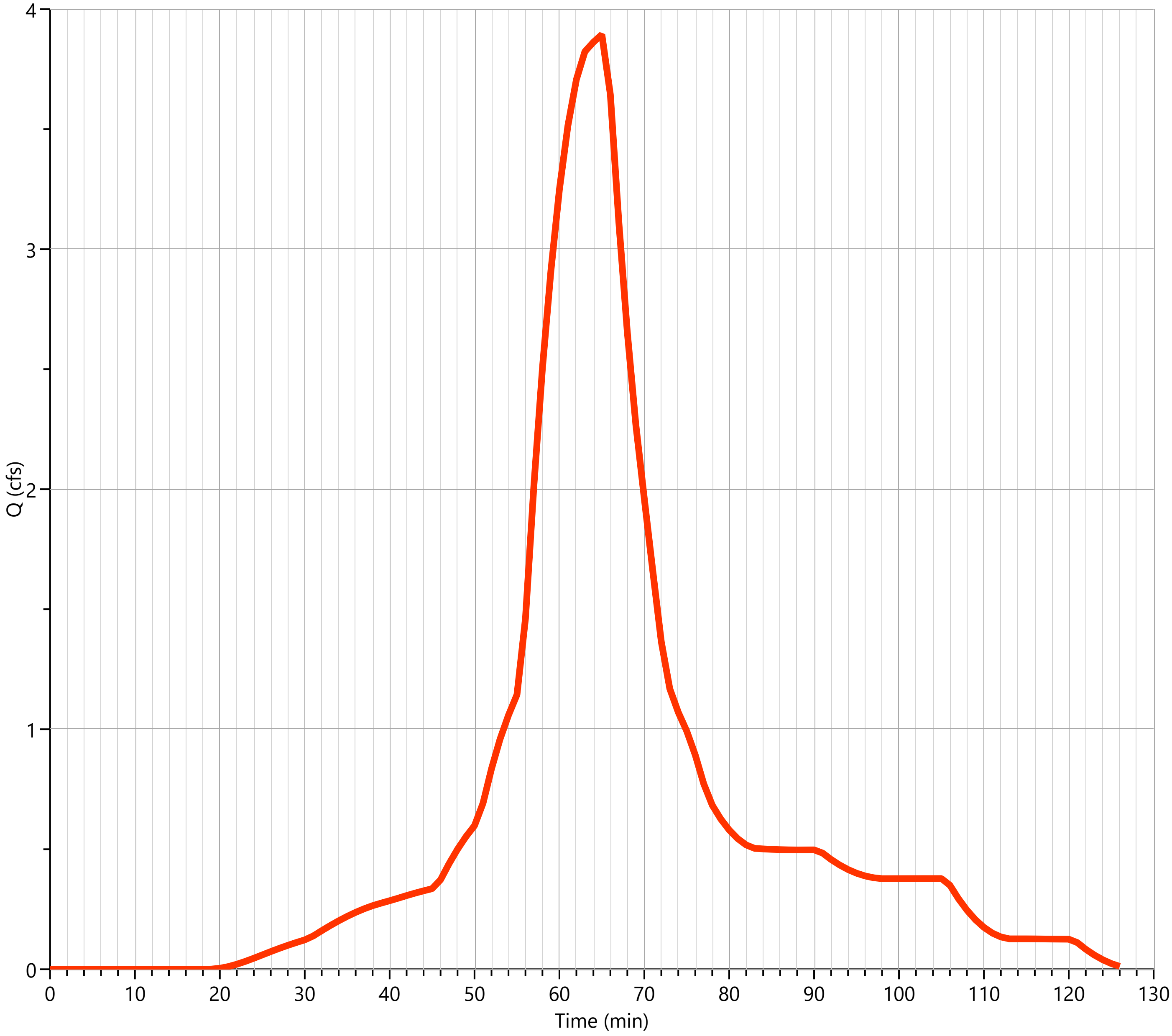
Qp = 0.000 cfs

2B (DET) IMP

Hyd. No. 14

Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.894 cfs
Storm Frequency	= 2-yr	Time to Peak	= 65 min
Time Interval	= 1 min	Runoff Volume	= 4,797 cuft
Drainage Area	= 1.29 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284

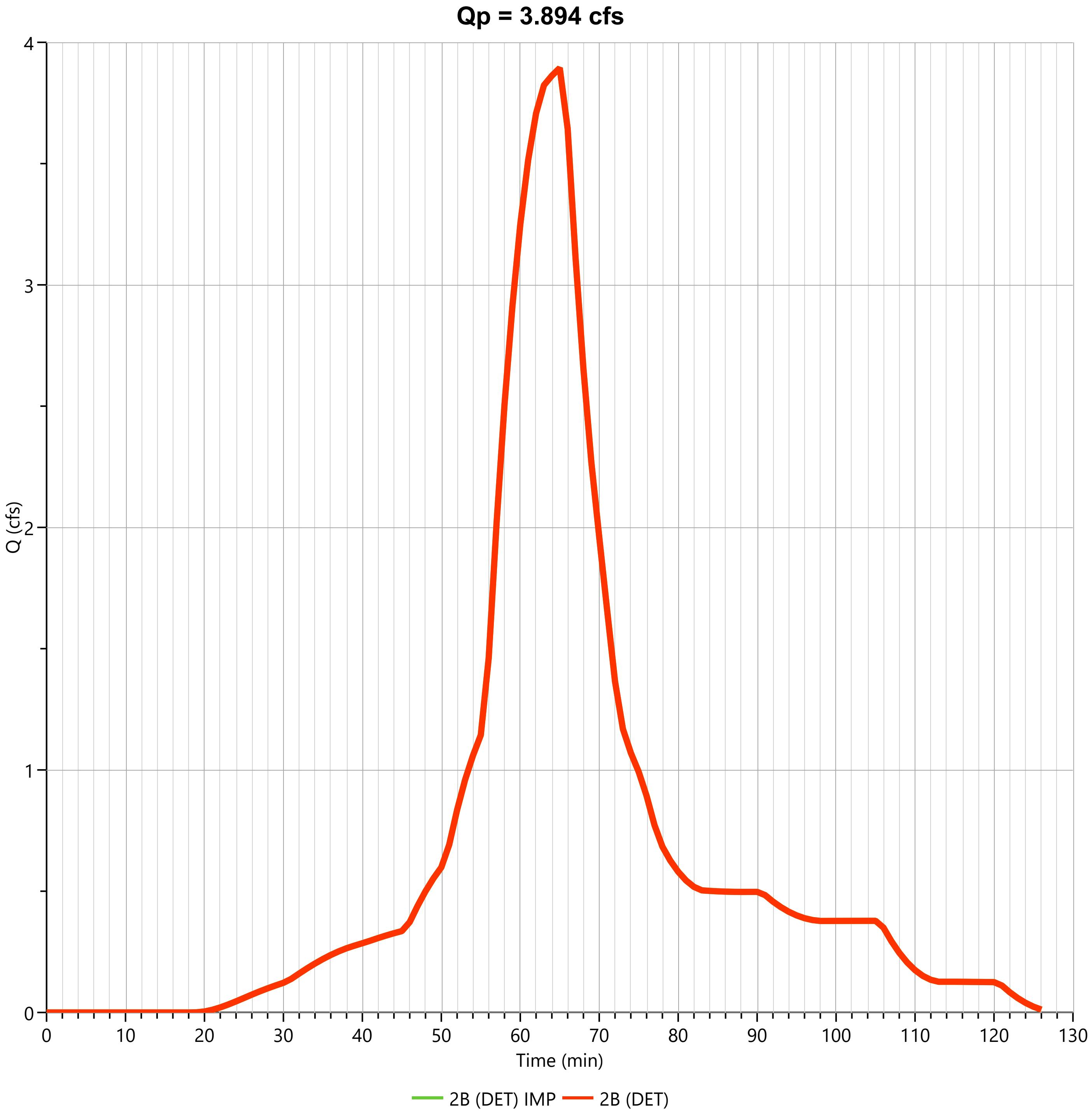
Qp = 3.894 cfs



2B (DET)

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 3.894 cfs
Storm Frequency	= 2-yr	Time to Peak	= 65 min
Time Interval	= 1 min	Hydrograph Volume	= 4,797 cuft
Inflow Hydrographs	= 13, 14	Total Contrib. Area	= 1.83 ac



2B ROUTED

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 15 - 2B (DET)	Max. Elevation	= 102.99 ft
Pond Name	= Basin 3	Max. Storage	= 4,797 cuft

Pond Routing by Storage Indication Method

Qp = 0.000 cfs

2A+2B

Hyd. No. 17

Hydrograph Type	= Junction	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac

Qp = 0.000 cfs

2A+2B REACH

Hyd. No. 18

Hydrograph Type	= Reach	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 17 - 2A+2B	Section Type	= Circular
Reach Length	= 435 ft	Channel Slope	= 0.50 %
Manning's n	= 0.012	Pipe Diameter	= 2.00 ft
Side Slope (h:v)	= n/a	Maximum Depth	= n/a
Rating Curve X	= 5.318	Average Velocity	= 0.63 ft/s
Rating Curve m	= 1.250	Routing Coeff.	= 0.000

Modified Att-Kin routing method

Qp = 0.000 cfs

2C (UNDET) PERV

Hyd. No. 19

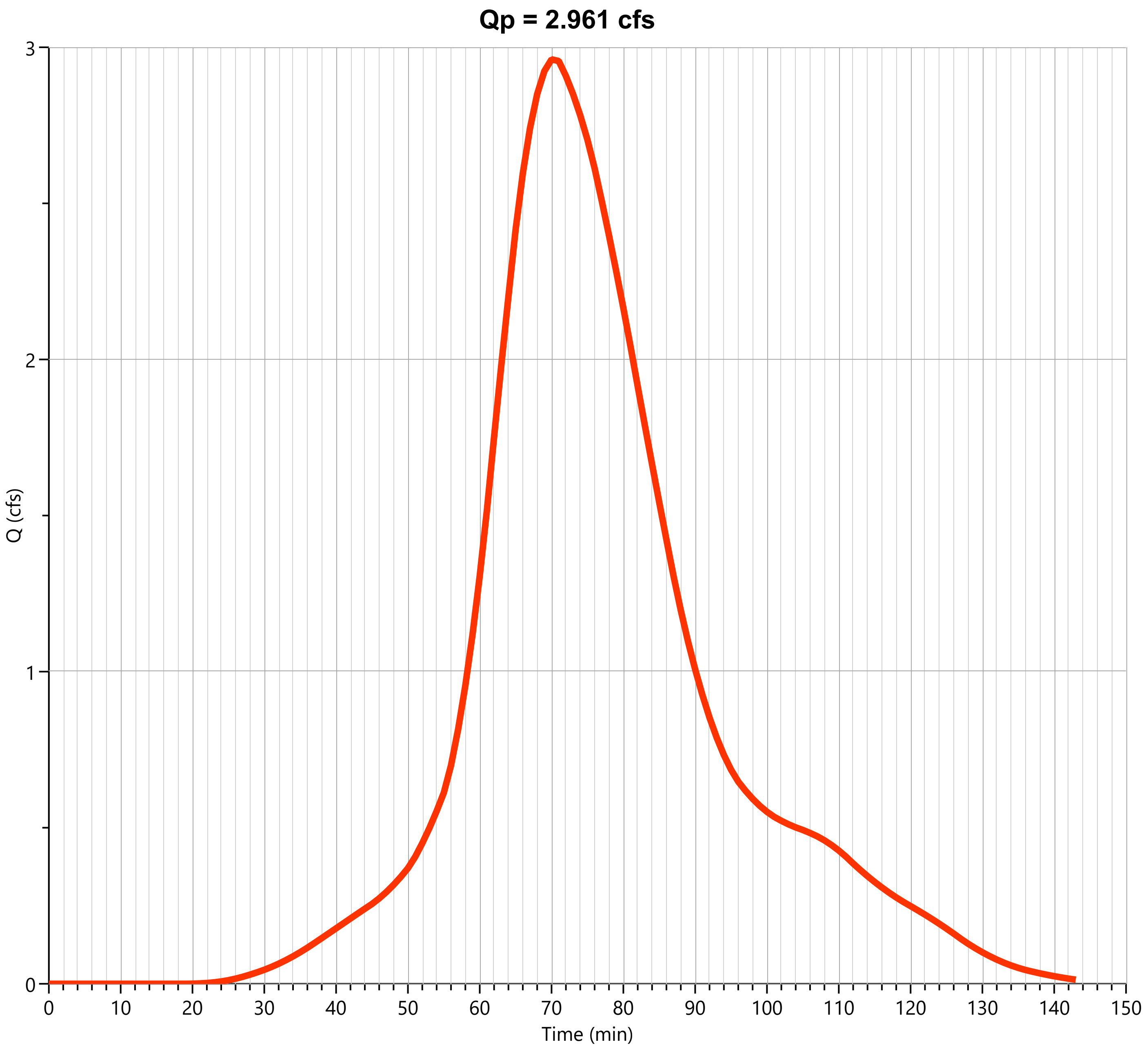
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 9.02 ac	Curve Number	= 55.00
Tc Method	= User	Time of Conc. (Tc)	= 35.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284

Qp = 0.000 cfs

2C (UNDET) IMP

Hyd. No. 20

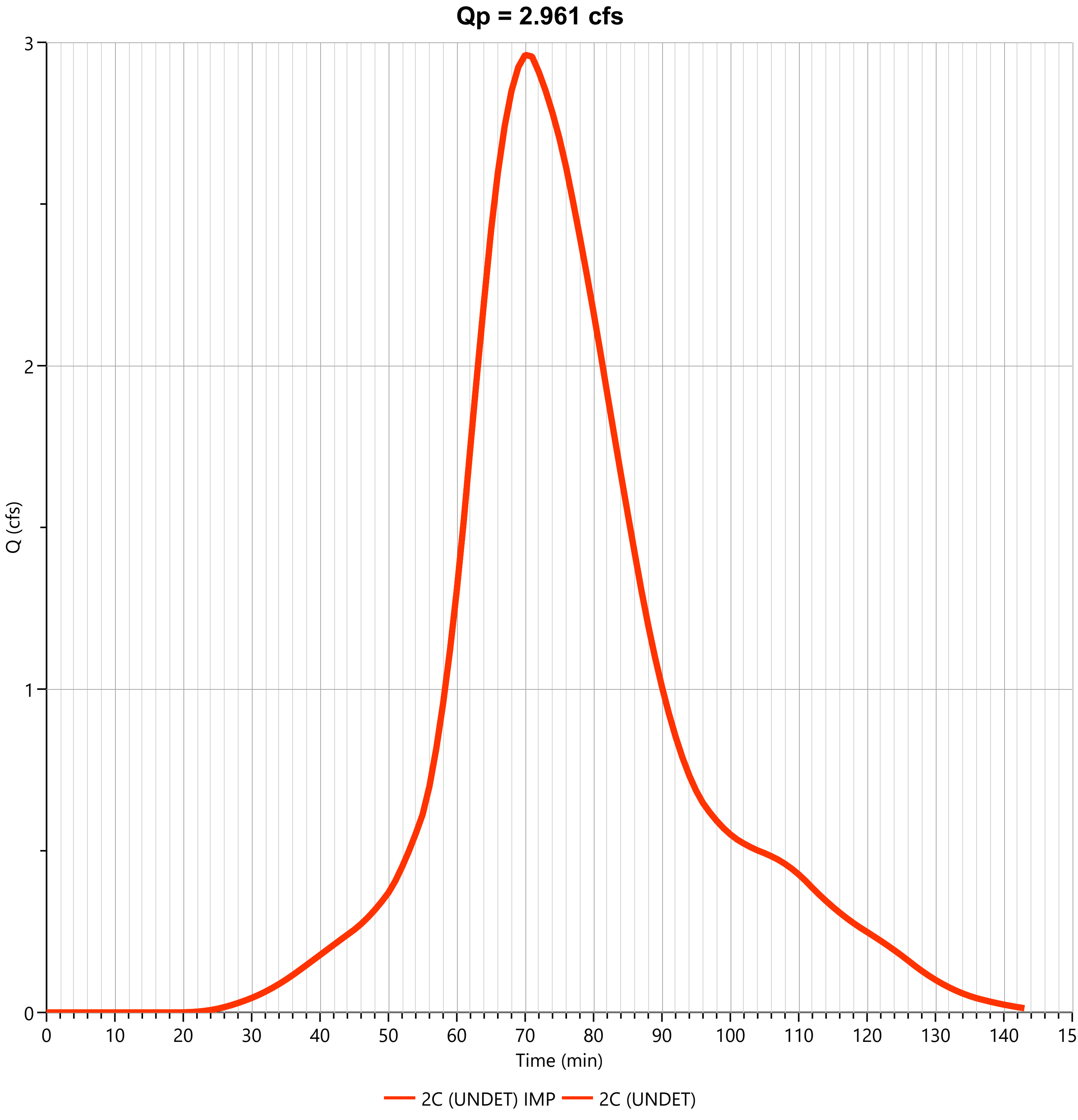
Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.961 cfs
Storm Frequency	= 2-yr	Time to Peak	= 70 min
Time Interval	= 1 min	Runoff Volume	= 5,629 cuft
Drainage Area	= 1.49 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 11.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284



2C (UNDET)

Hyd. No. 21

Hydrograph Type	= Junction	Peak Flow	= 2.961 cfs
Storm Frequency	= 2-yr	Time to Peak	= 70 min
Time Interval	= 1 min	Hydrograph Volume	= 5,629 cuft
Inflow Hydrographs	= 19, 20	Total Contrib. Area	= 10.51 ac

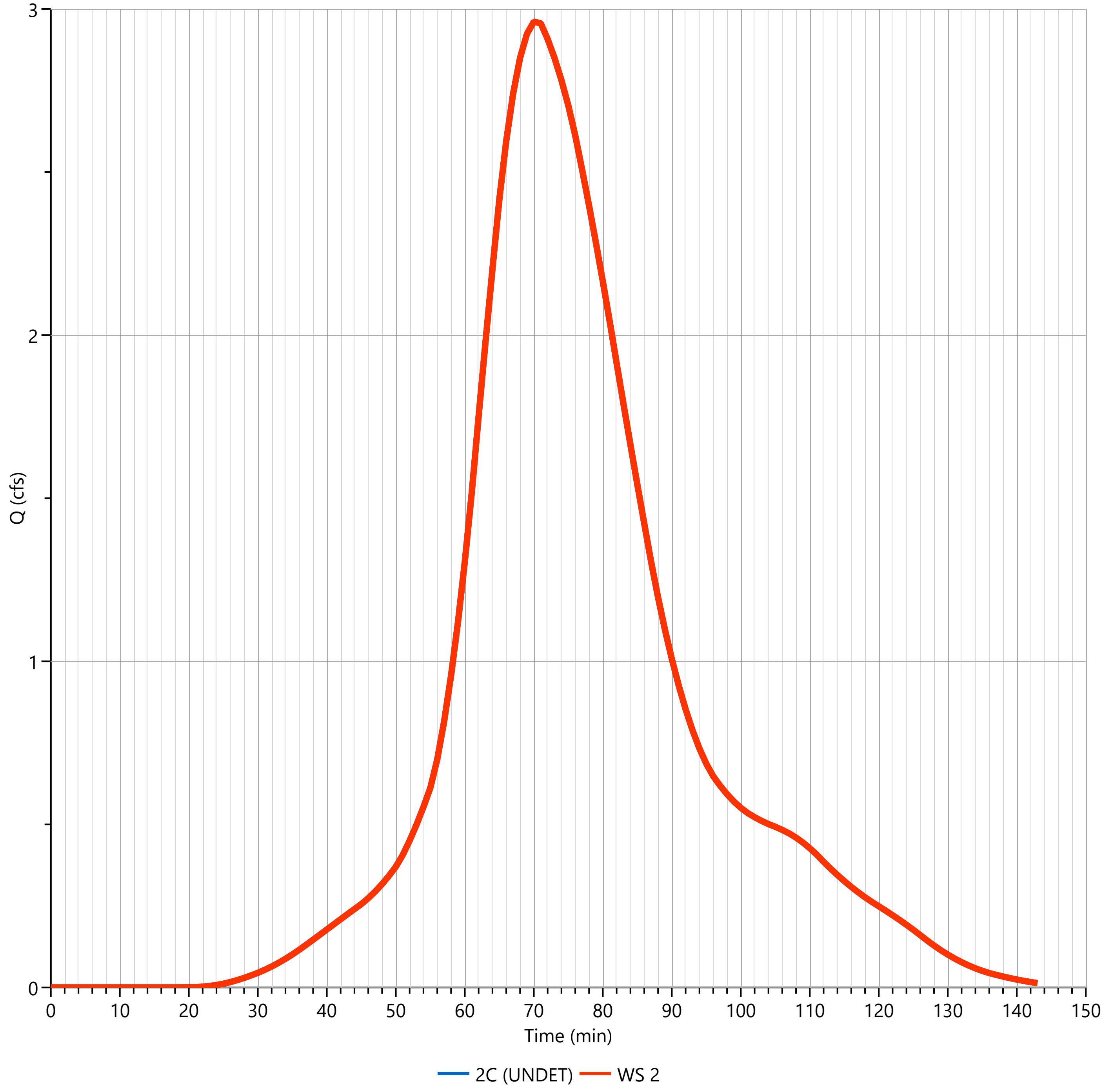


WS 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 2.961 cfs
Storm Frequency	= 2-yr	Time to Peak	= 70 min
Time Interval	= 1 min	Hydrograph Volume	= 5,629 cuft
Inflow Hydrographs		Total Contrib. Area	= 0.0 ac

Qp = 2.961 cfs



PROPOSED POND REPORTS

Basin 1

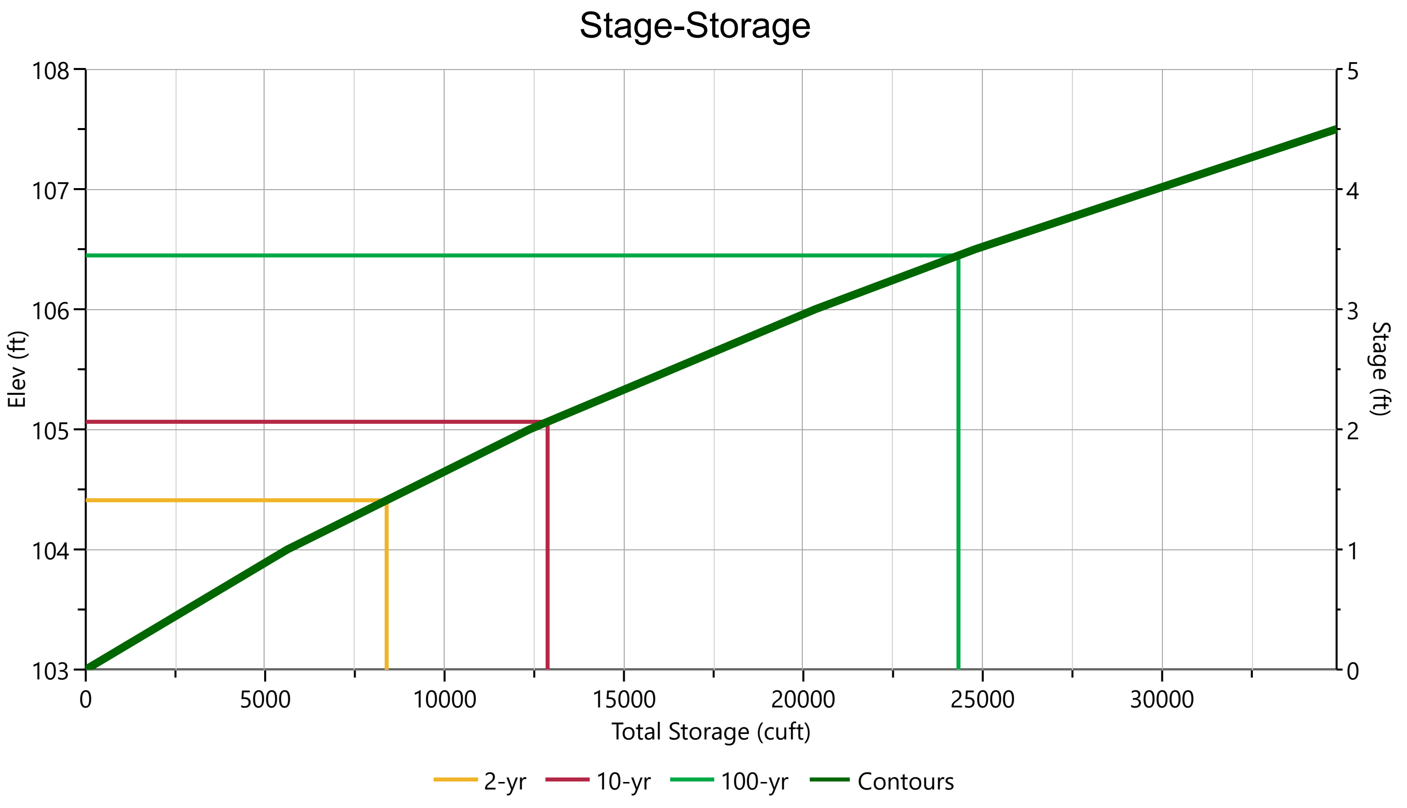
Stage-Storage

User Defined Contours

Description	Input
Bottom Elevation, ft	103.00
Voids (%)	100.00
Volume Calc	None

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	103.00	5,072	0.000	0.000
1.00	104.00	6,167	5,620	5,620
2.00	105.00	7,333	6,750	12,370
3.00	106.00	8,595	7,964	20,334
3.50	106.50	9,239	4,459	24,792
4.50	107.50	10,902	10,071	34,863



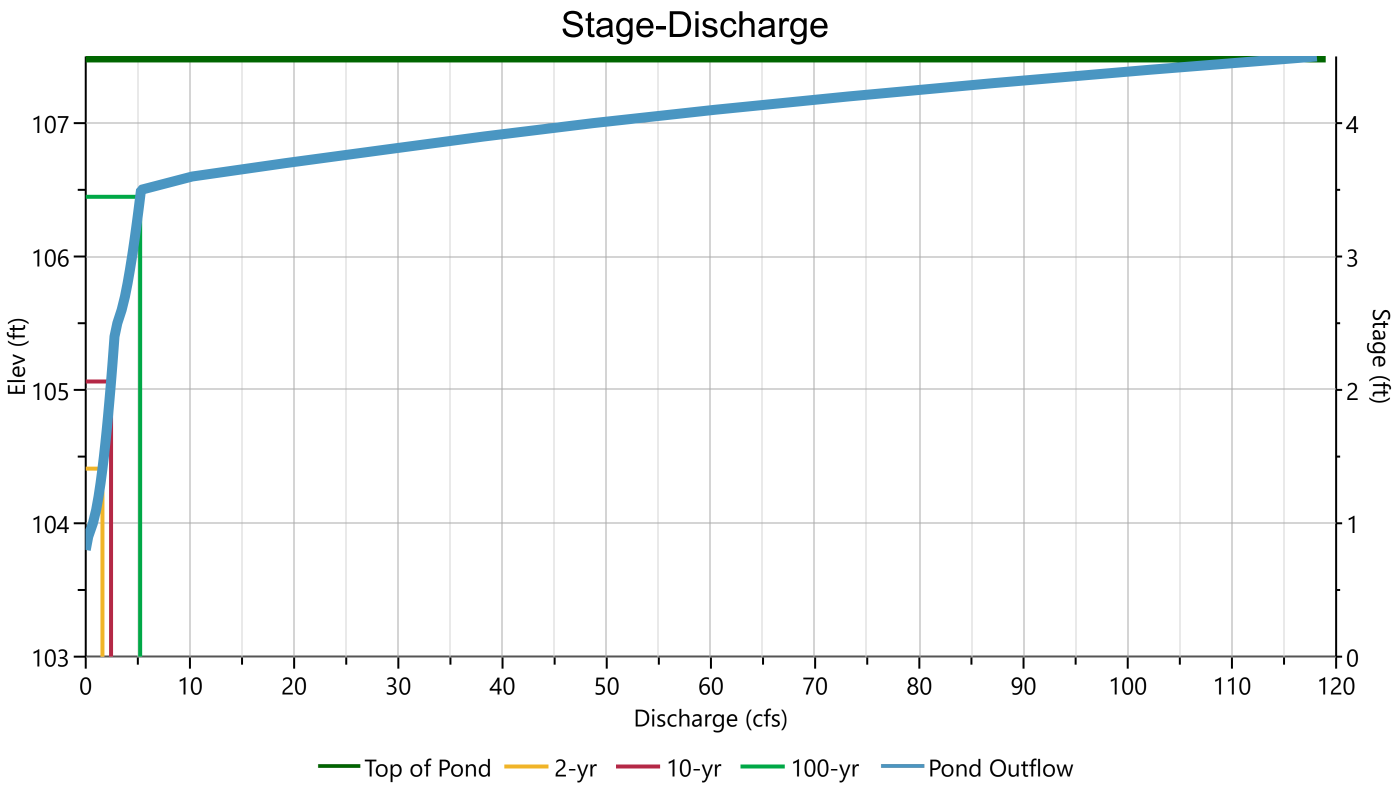
Basin 1

Stage-Discharge

Culvert / Orifices	Cir Culvert	Orifice			Perforated Riser	
		1 (m)	2 (m)	3		
Rise, in	18	2.5	2.5		Hole Diameter, in	
Span, in	18	27	20		No. holes	
No. Barrels	1	1	1		Invert Elevation, ft	
Invert Elevation, ft	99.75	103.80	105.40		Height, ft	
Orifice Coefficient, Co	0.60	0.60	0.60		Orifice Coefficient, Co	
Length, ft	531					
Barrel Slope, %	.5					
N-Value, n	0.012					

Weirs	Riser	Weir			Ancillary	
		1 (m)	2 (i)	3		
Shape / Type		Rectangular	Broad Crested		Exfiltration, in/hr	
Crest Elevation, ft		106.5	106.5			
Crest Length, ft		16	29			
Angle, deg			18.4 (3:1)			
Weir Coefficient, Cw		3.33	3.33			

m = Flows through Culvert, i = Independent



Basin 1

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	103.00	0.000	0.000	0.000	0.000			0.000	0.000					0.000
1.00	104.00	5,620	0.685 oc	0.685	0.000			0.000	0.000					0.685
2.00	105.00	12,370	2.363 oc	2.363	0.000			0.000	0.000					2.363
3.00	106.00	20,334	4.445 oc	3.267	1.177			0.000	0.000					4.445
3.50	106.50	24,792	5.305 oc	3.636	1.668			0.000	0.000					5.305
4.50	107.50	34,863	13.58 oc	0.298	0.220			13.07 s	104.6					118.1

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Basin 2

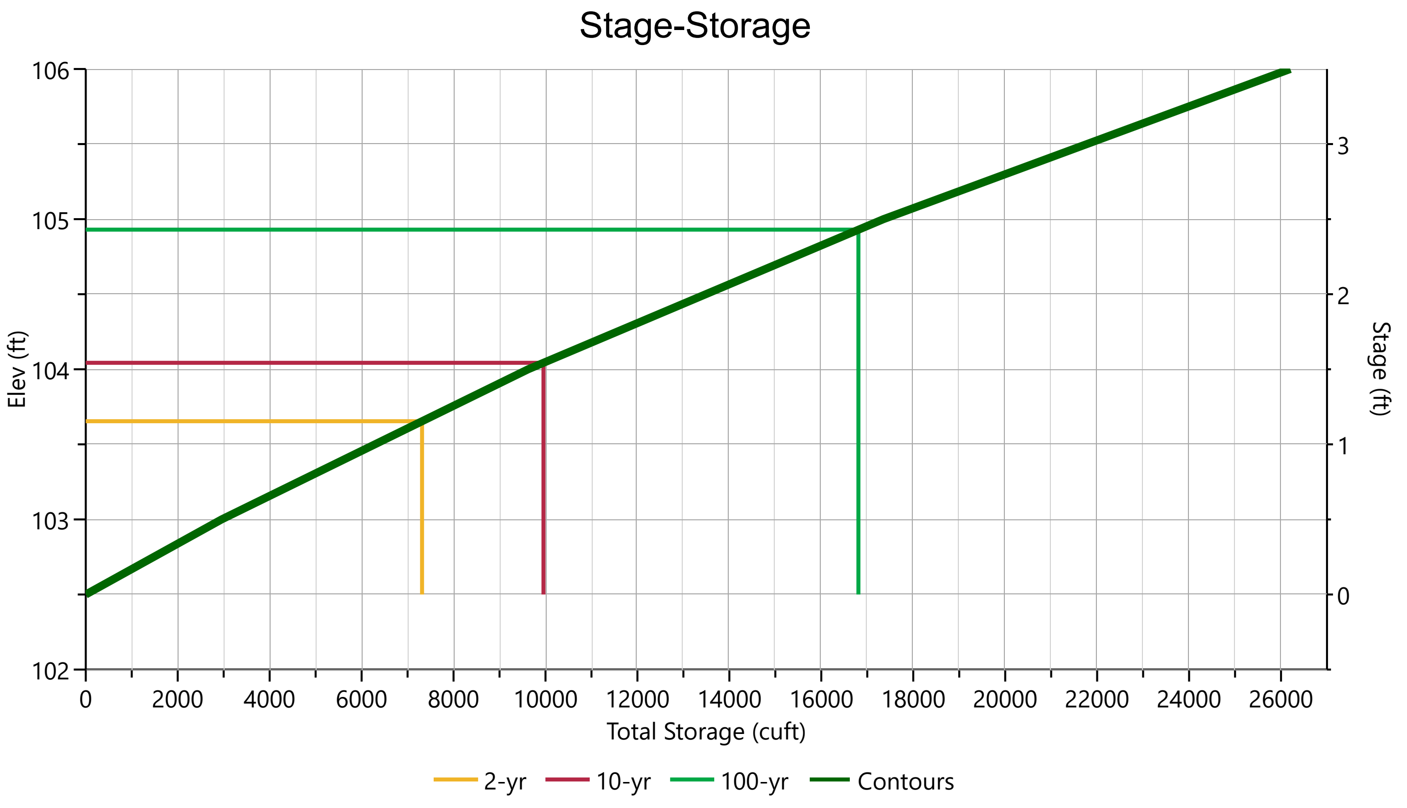
Stage-Storage

User Defined Contours

Description	Input
Bottom Elevation, ft	102.50
Voids (%)	100.00
Volume Calc	Ave End Area

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	102.50	5,663	0.000	0.000
0.50	103.00	6,154	2,954	2,954
1.50	104.00	7,182	6,668	9,622
2.50	105.00	8,277	7,730	17,352
3.50	106.00	9,422	8,850	26,201



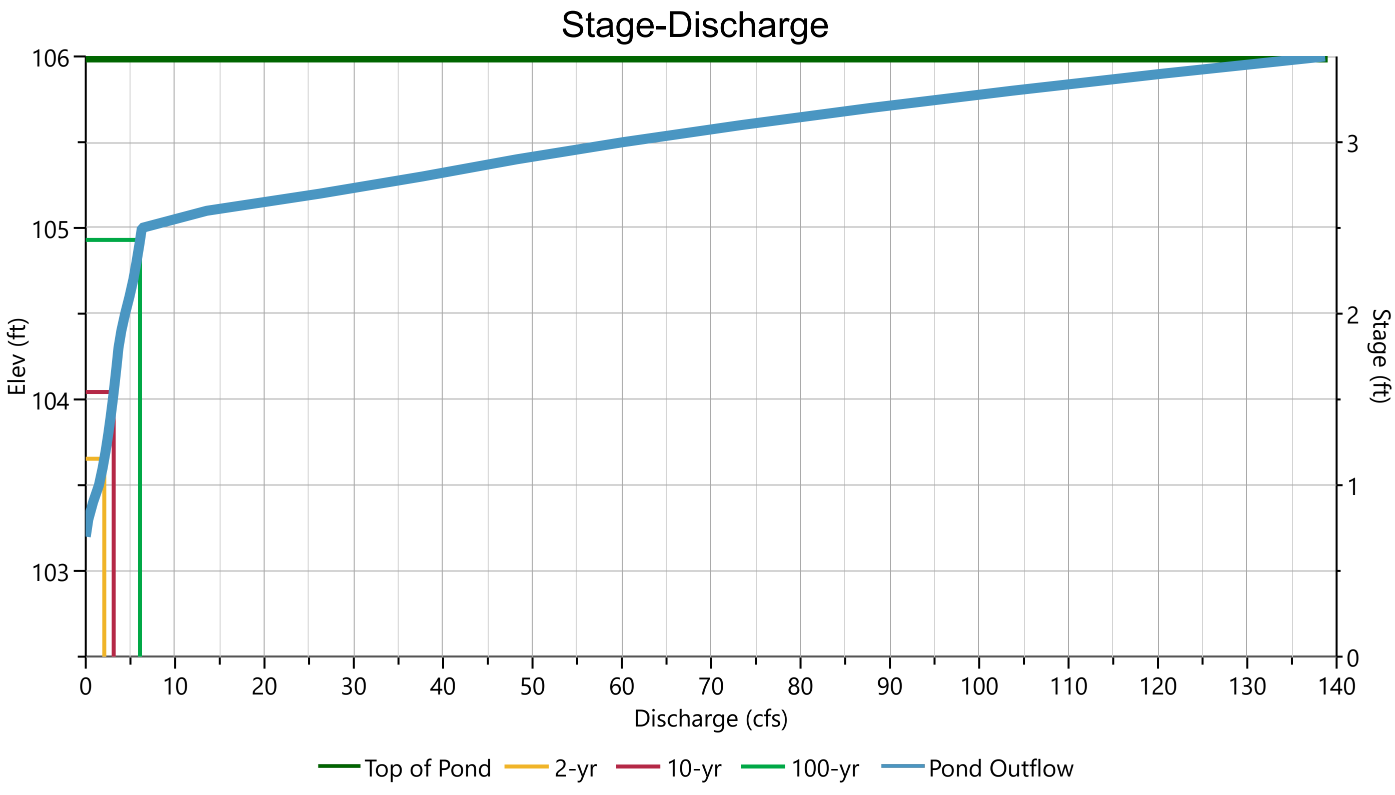
Basin 2

Stage-Discharge

Culvert / Orifices	Cir Culvert	Orifice 1 (m)	Orifice 2 (m)	Orifice 3	Perforated Riser	
Rise, in	18	3.5	4		Hole Diameter, in	
Span, in	18	32	15		No. holes	
No. Barrels	1	1	1		Invert Elevation, ft	
Invert Elevation, ft	99.25	103.20	104.30		Height, ft	
Orifice Coefficient, Co	0.60	0.60	0.60		Orifice Coefficient, Co	
Length, ft	62					
Barrel Slope, %	1					
N-Value, n	0.012					

Weirs	Riser	Weir 1 (m)	Weir 2 (i)	Weir 3	Ancillary	
Shape / Type		Rectangular	Broad Crested		Exfiltration, in/hr	
Crest Elevation, ft		105	105			
Crest Length, ft		16	33			
Angle, deg			18.4 (3:1)			
Weir Coefficient, Cw		3.33	3.33			

m = Flows through Culvert, i = Independent



Basin 2

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	102.50	0.000	0.000	0.000	0.000			0.000	0.000					0.000
0.50	103.00	2,954	0.000 ic	0.000	0.000			0.000	0.000					0.000
1.50	104.00	9,622	3.029 ic	3.029	0.000			0.000	0.000					3.029
2.50	105.00	17,352	6.282 ic	4.817	1.465			0.000	0.000					6.282
3.50	106.00	26,201	20.82 ic	0.341	0.183			20.30 s	117.9					138.7

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Basin 3

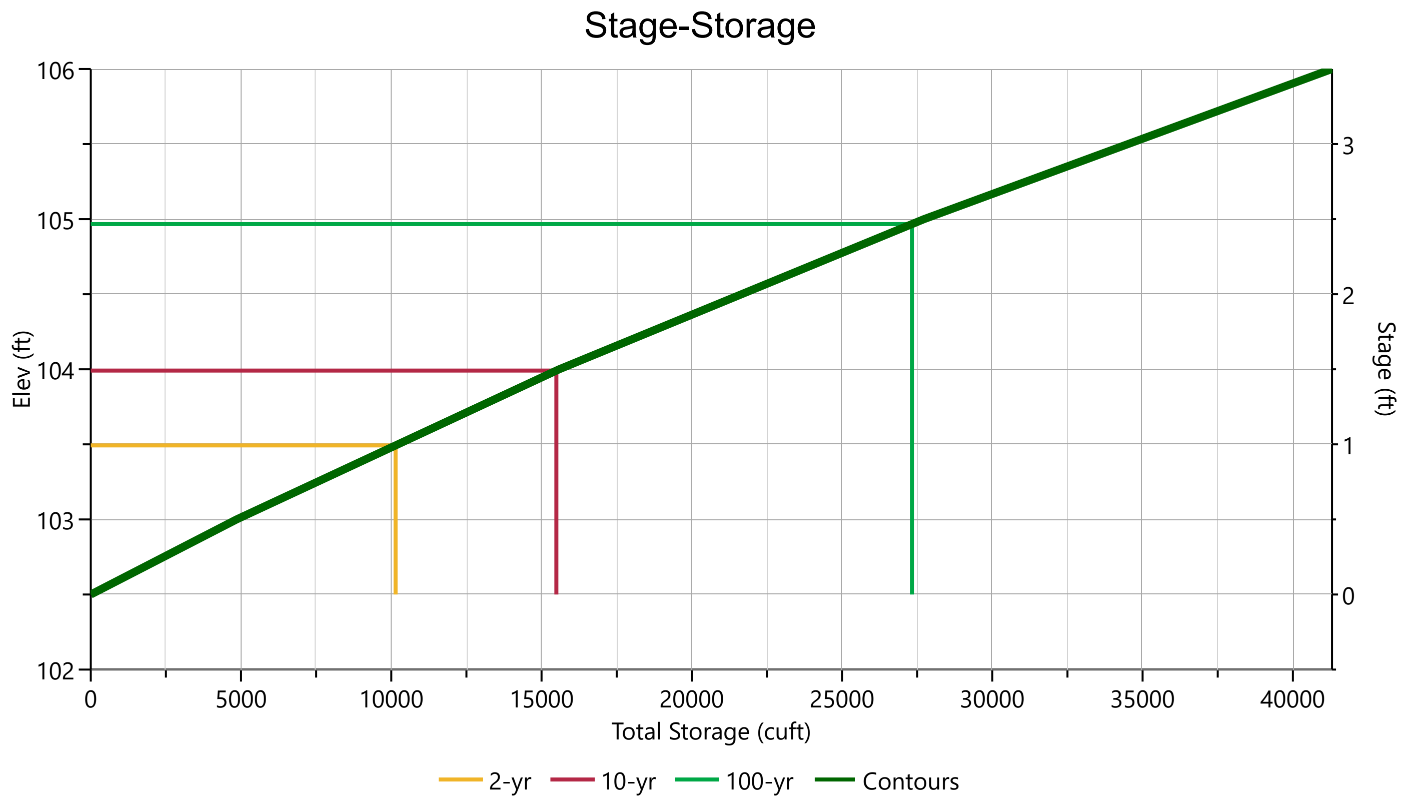
Stage-Storage

User Defined Contours

Description	Input
Bottom Elevation, ft	102.50
Voids (%)	100.00
Volume Calc	Ave End Area

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	102.50	9,363	0.000	0.000
0.50	103.00	10,039	4,851	4,851
1.50	104.00	11,431	10,735	15,586
2.50	105.00	12,848	12,140	27,725
3.50	106.00	14,307	13,578	41,303



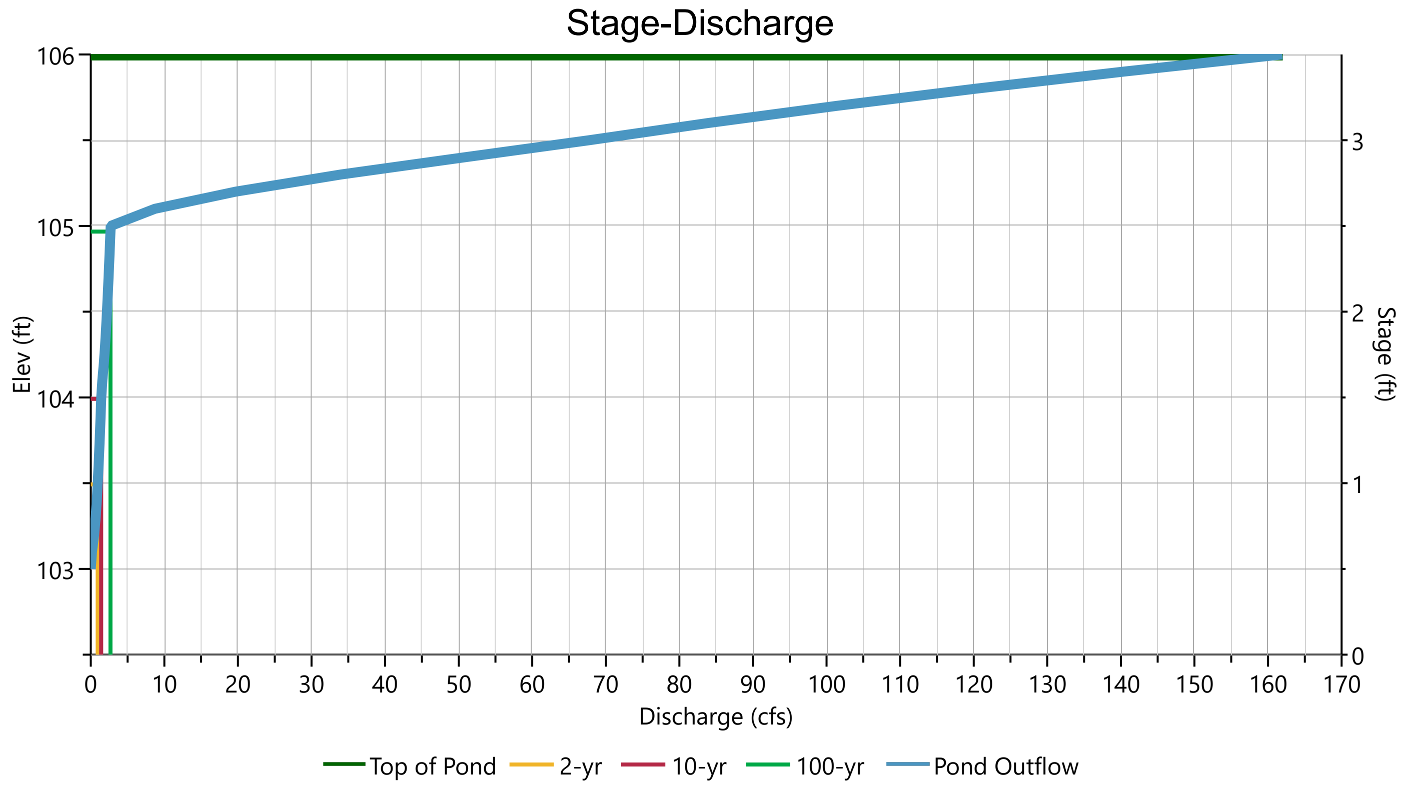
Basin 3

Stage-Discharge

Culvert / Orifices	Cir Culvert	Orifice			Perforated Riser	
		1 (m)	2 (m)	3		
Rise, in	18	2.5	2.5		Hole Diameter, in	
Span, in	18	18	8		No. holes	
No. Barrels	1	1	1		Invert Elevation, ft	
Invert Elevation, ft	99.25	103.00	104.00		Height, ft	
Orifice Coefficient, Co	0.60	0.60	0.60		Orifice Coefficient, Co	
Length, ft	62					
Barrel Slope, %	1					
N-Value, n	0.012					

Weirs	Riser	Weir			Ancillary	
		1 (m)	2 (i)	3		
Shape / Type		Rectangular	Broad Crested		Exfiltration, in/hr	
Crest Elevation, ft		105	105			
Crest Length, ft		16	40			
Angle, deg			18.4 (3:1)			
Weir Coefficient, Cw		3.33	3.33			

m = Flows through Culvert, i = Independent



Basin 3

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	102.50	0.000	0.000	0.000	0.000			0.000	0.000					0.000
0.50	103.00	4,851	0.000 ic	0.000	0.000			0.000	0.000					0.000
1.50	104.00	15,586	1.424 ic	1.424	0.000			0.000	0.000					1.424
2.50	105.00	27,725	2.705 ic	2.072	0.633			0.000	0.000					2.705
3.50	106.00	41,303	20.73 ic	0.352	0.156			20.22 s	141.2					161.9

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

BASIN DRAIN TIME CALCULATIONS

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Basin Drain Time Summary
Data Center at Bell Works
Holmdel, Monmouth County, NJ
July 2026

BASIN DRAIN TIME CALCULATIONS FOR BIORETENTION BASINS WITH UNDERDRAINS

Design Notes and Standards:
1. The NJDEP water quality design storm event is 1.25 inches over a period of 2 hours.
2. The maximum contributory drainage area to the small-scale bioretention basin is 2.5 acres.
3. The design permeability rate of the soil media is 1/2 the tested permeability rate of the soil media.
3. The bioretention basin, including underdrain pipes, must drain within 72 hours after any storm event.
4. The seasonal high water table or bedrock must be a minimum of 1 foot below the bottom of the underdrain.

BIORETENTION BASIN #	BASIN BOTTOM AREA (SF)	STORAGE VOLUME UNDER FIRST ORIFICE (CF)	SOIL MEDIA DESIGN PERMEABILITY RATE (IN/HR)	DRAIN TIME THROUGH SOIL MEDIA (HRS)	UNDERDRAIN PIPE DIAMETER (IN)	UNDERDRAIN PIPE SLOPE (FT/FT)	UNDERDRAIN CAPACITY (CFS)	DRAIN TIME THROUGH UNDERDRAIN (HRS)
1	5,072	4,496	1.0	10.64	6	0.005	0.43	2.90
2	5,663	4,288	1.0	9.09	6	0.005	0.43	2.77
3	9,363	4,851	1.0	6.22	6	0.004	0.38	3.55

Notes:

$$\text{Basin Drain Time Through Soil Media} = \frac{\textit{Design Storm Volume}}{\textit{(Infiltration Area) * (Design Permeability Rate)}} \quad \textit{(NJ Stormwater BMP Manual)}$$

$$\text{Underdrain Drain Time} = \frac{\textit{Design Storm Volume}}{\textit{Underdrain Capacity}} \quad \textit{(NJ Stormwater BMP Manual)}$$

Underdrain pipe capacity of 0.43 cfs is based upon 6" HDPE pipe at 0.5% slope. Underdrain pipe capacity of 0.38 cfs is based upon 4" HDPE pipe at 0.4% slope.

BASIN #	TIME TO 100-YR FUTURE PEAK WATER SURFACE ELEVATION (HRS)	TIME TO FULLY DRAIN BASIN TO LOWEST ORIFICE (HRS)	DRAIN TIME THROUGH SUBSOIL / SOIL MEDIA (HRS)	DRAIN TIME THROUGH UNDERDRAIN (HRS)	100-YEAR FUTURE STORM DRAIN TIME (HRS)
1	12.30	30.32	10.64	2.90	**31.6**
2	12.32	27.55	9.09	2.77	**27.1**
3	12.58	33.83	6.22	3.55	**31.0**

EMERGENCY SPILLWAY CALCULATIONS

EMERGENCY SPILLWAY CALCULATIONS

Design Criteria: 100% of the 100-year inflow must pass assuming failure of principal spillway in Bioretention Basin 1

Peak inflow into Bioretention Basin 1 during 100-year future storm = 18.6 (cfs) **(Refer to Hydrographs in Appendix B)**

The width of the spillway is set at 29 ft

Consider the emergency spillway as a broad crested weir. Then,

$Q = 3.1\ B\ H^{3/2}$

where
Q = flow rate through spillway, cfs
H = weir height, ft
B = bottom of spillway width 29.00 ft
Side slopes = 3:1

Solving for H, $H = (Q / 3.1\ B)^{2/3}$

Substituting and solving for H yields a height of **0.35** **ft**

Average Velocity V = Q/A = Q/(B+4H)H = 1.75 ft/sec

Allowable velocity for soil type Sand is 1.75 ft/sec
Actual velocity during 1.0 x 100-year emergency spillway discharge is 1.75 **OK**

Data Center at Bell Works	BY: BMW	DATE 7/23/2026	PROJ NO.	102054601
Bioretention Basin 1 Emergency Spillway			SHEET	1 OF 1

EMERGENCY SPILLWAY CALCULATIONS

Design Criteria: 100% of the 100-year inflow must pass assuming failure of principal spillway in Bioretention Basin 2

Peak inflow into Bioretention Basin 2 during 100-year future storm = 16.4 (cfs) **(Refer to Hydrographs in Appendix B)**

The width of the spillway is set at 33 ft

Consider the emergency spillway as a broad crested weir. Then,

$Q = 3.1\ B\ H^{3/2}$

where Q = flow rate through spillway, cfs
H = weir height, ft
B = bottom of spillway width 33.00 ft
Side slopes = 3:1

Solving for H, $H = (Q / 3.1\ B)^{2/3}$

Substituting and solving for H yields a height of **0.30** **ft**

Average Velocity V = Q/A = Q/(B+4H)H = 1.63 ft/sec

Allowable velocity for soil type Sand is 1.75 ft/sec
Actual velocity during 1.0 x 100-year emergency spillway discharge is 1.63 **OK**

Data Center at Bell Works	BY: BMW DATE 7/23/2026	PROJ NO. 102054601
Bioretention Basin 2 Emergency Spillway		SHEET 1 OF 1

EMERGENCY SPILLWAY CALCULATIONS

Design Criteria: 100% of the 100-year inflow must pass assuming failure of principal spillway in Bioretention Basin 3

Peak inflow into Bioretention Basin 3 during 100-year future storm = 18.2 (cfs) **(Refer to Hydrographs in Appendix B)**

The width of the spillway is set at 40 ft

Consider the emergency spillway as a broad crested weir. Then,

$Q = 3.1\ B\ H^{3/2}$

where
Q = flow rate through spillway, cfs
H = weir height, ft
B = bottom of spillway width 40.00 ft
Side slopes = 3:1

Solving for H, $H = (Q / 3.1\ B)^{2/3}$

Substituting and solving for H yields a height of **0.28 ft**

Average Velocity V = Q/A = Q/(B+4H)H = 1.59 ft/sec

Allowable velocity for soil type Sand is 1.75 ft/sec
Actual velocity during 1.0 x 100-year emergency spillway discharge is 1.59 **OK**

Data Center at Bell Works	BY:	BMW	DATE	7/23/2026	PROJ NO.	102054601
Bioretention Basin 3 Emergency Spillway					SHEET	1 OF 1

WATER QUALITY UNIT SIZING CALCULATIONS

Proposed Curve Number (CN) Calculations

		HSG B		HSG D			
Drainage Area	**Area (ac)**	**Open Space (ac)**	**Wooded Area (ac)**	**Open Space (ac)**	**Weighted Pervious CN**	**Total Pervious Area (ac)**	**Impervious Area (ac)**
		CN = 61	**CN = 55**	**CN = 80**			**CN = 98**
WQ-101	1.11	0.47	0.12	0.00	60	0.59	0.52
WQ-102	0.96	0.42	0.04	0.01	61	0.48	0.48
WQ-103	0.45	0.04	0.00	0.00	61	0.04	0.41
WQ-104	0.37	0.07	0.00	0.00	61	0.07	0.30

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: Present [✓ Developed] WQ-101 - Pervious (Current)

Circle One: [✓ T_c] T_t through subarea

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1	2	
1.	Surface Description (NEH table 15-1)		Woods Light Underbrush	Short Grass Prairie	
2.	Manning's Roughness Coeff., n (NEH table 15-1)		0.40	0.15	
3.	Flow Length, L (total L < 100 ft)	ft	37	63	
4.	Two-year 24-hr rainfall, P_2	in	3.35	3.35	
5.	Land Slope, s	ft/ft	0.058	0.160	
6.	Compute T_t $\quad T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.103 +	0.048 +	

Sheet Flow Sub-Total **0.151 hours**

Shallow Concentrated Flow

		Segment ID	3	4	
7.	Surface Description		Short-Grass Pasture	Pavement	
8.	Flow Length, L	ft	10	30	
9.	Watercourse Slope, s	ft/ft	0.039	0.055	
10.	Average Velocity, V (NEH table 15-3)	ft/s	1.37	4.78	
11.	Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	0.002 +	0.002 +	

Shallow Conc. Flow Sub-Total **0.004 hours**

Channel Flow

		Segment ID	5	6	
12.	Flow Length, L	ft	95	39	
13.	Cross Sectional flow area, a	ft^2	0.79	1.23	
14.	Wetted Perimeter, P_w	ft	3.14	3.93	
15.	Hydraulic Radius, r $\quad r = a / P_w$	ft	0.25	0.31	
16.	Channel Slope, s	ft/ft	0.006	0.005	
17.	Manning's Roughness Coeff., n		0.012	0.012	
18.	Velocity, V $\quad V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s	3.82	4.10	
19.	Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	0.007 +	0.003 +	

Channel Flow Sub-Total **0.010 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.165 hours**
Total Tc (minutes) =	**10 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: Present [✓ Developed] **WQ-101 - Impervious (Current)**

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

			Segment ID	1		
1.	Surface Description (NEH table 15-1)			Smooth Surfaces		
2.	Manning's Roughness Coeff., n (NEH table 15-1)			0.011		
3.	Design Flow Length, L_{des} (Total L_{des} < 100 ft)		ft	66		
4.	Two-year 24-hr rainfall, P_2		in	3.35		
5.	Land Slope, s		ft/ft	0.016		
6.	McCuen-Spiess Limit, L_{mcs} (max. 100 ft)	$L_{mcs} = (100\ s^{0.5})/n$	ft	100		
7.	Compute T_t	$T_t = \frac{0.007\ (nL_{des})^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.015	+	+

Sheet Flow Sub-Total **0.015 hours**

Shallow Concentrated Flow

			Segment ID			
8.	Surface Description					
9.	Flow Length, L		ft			
10.	Watercourse Slope, s		ft/ft			
11.	Average Velocity, V (NEH table 15-3)		ft/s			
12.	Compute T_t	$T_t = \frac{L}{3600\ V}$	hr		+	+

Shallow Conc. Flow Sub-Total **0.000 hours**

Channel Flow

			Segment ID	2	3	
13.	Flow Length, L		ft	322	39	
14.	Cross Sectional flow area, a		ft^2	0.79	1.23	
15.	Wetted Perimeter, P_w		ft	3.14	3.93	
16.	Hydraulic Radius, r	$r = a / P_w$	ft	0.25	0.31	
17.	Channel Slope, s		ft/ft	0.006	0.058	
18.	Manning's Roughness Coeff., n			0.012	0.012	
19.	Velocity, V	$V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s	3.82	13.81	
20.	Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	0.023	+ 0.001	+

Channel Flow Sub-Total **0.024 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) = **0.040 hours**
Total Tc (minutes) = **2 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] **WQ-102 - Pervious (Current)**
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

			Segment ID			
Sheet Flow (Applicable to T_c Only)				**1**		
1.	Surface Description (NEH table 15-1)			**Short Grass Prairie**		
2.	Manning's Roughness Coeff., n (NEH table 15-1)			**0.15**		
3.	Flow Length, L (total L < 100 ft)		ft	**100**		
4.	Two-year 24-hr rainfall, P_2		in	**3.35**		
5.	Land Slope, s		ft/ft	**0.056**		
6.	Compute T_t	$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	**0.106**	+	+

Sheet Flow Sub-Total **0.106 hours**

			Segment ID			
Shallow Concentrated Flow				**2**	**3**	
7.	Surface Description			**Short-Grass Pasture**	**Pavement**	
8.	Flow Length, L		ft	**15**	**182**	
9.	Watercourse Slope, s		ft/ft	**0.070**	**0.014**	
10.	Average Velocity, V (NEH table 15-3)		ft/s	**1.84**	**2.37**	
11.	Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	**0.002**	+ **0.021**	+

Shallow Conc. Flow Sub-Total **0.024 hours**

			Segment ID			
Channel Flow				**4**		
12.	Flow Length, L		ft	**159**		
13.	Cross Sectional flow area, a		ft^2	**0.79**		
14.	Wetted Perimeter, P_w		ft	**3.14**		
15.	Hydraulic Radius, r	$r = a / P_w$	ft	**0.25**		
16.	Channel Slope, s		ft/ft	**0.006**		
17.	Manning's Roughness Coeff., n			**0.012**		
18.	Velocity, V	$V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s	**3.89**		
19.	Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	**0.011**	+	+

Channel Flow Sub-Total **0.011 hours**

Watershed or subarea T_c or T_t	Total Tc (hours) =	**0.141 hours**
(Add Sub-Total T_t from prior steps)	Total Tc (minutes) =	**8 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] WQ-102 - Impervious (Current)
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

		Segment ID	1		
1.	Surface Description (NEH table 15-1)		Smooth Surfaces		
2.	Manning's Roughness Coeff., n (NEH table 15-1)		0.011		
3.	Flow Length, L (total L < 100 ft)	ft	100		
4.	Two-year 24-hr rainfall, P_2	in	3.35		
5.	Land Slope, s	ft/ft	0.011		
6.	Compute T_t $\quad T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.025	+	+

Sheet Flow Sub-Total **0.025 hours**

Shallow Concentrated Flow

		Segment ID	2		
7.	Surface Description		Pavement		
8.	Flow Length, L	ft	110		
9.	Watercourse Slope, s	ft/ft	0.013		
10.	Average Velocity, V (NEH table 15-3)	ft/s	2.35		
11.	Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	0.013	+	+

Shallow Conc. Flow Sub-Total **0.013 hours**

Channel Flow

		Segment ID	3		
12.	Flow Length, L	ft	159		
13.	Cross Sectional flow area, a	ft^2	0.79		
14.	Wetted Perimeter, P_w	ft	3.14		
15.	Hydraulic Radius, r $\quad r = a / P_w$	ft	0.25		
16.	Channel Slope, s	ft/ft	0.006		
17.	Manning's Roughness Coeff., n		0.012		
18.	Velocity, V $\quad V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s	3.89		
19.	Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	0.011	+	+

Channel Flow Sub-Total **0.011 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.050 hours**
Total Tc (minutes) =	**3 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026
Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026
Circle One: Present [✓ Developed] WQ-103 - Pervious (Current)
Circle One: [✓ T_c] T_t **through subarea**
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

	Segment ID	1	2	
1. Surface Description (NEH table 15-1)		Short Grass Prairie	Smooth Surfaces	
2. Manning's Roughness Coeff., n (NEH table 15-1)		0.15	0.011	
3. Flow Length, L (total L < 100 ft)	ft	15	71	
4. Two-year 24-hr rainfall, P_2	in	3.35	3.35	
5. Land Slope, s	ft/ft	0.081	0.031	
6. Compute T_t $\quad T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.020 +	0.013 +	

Sheet Flow Sub-Total **0.033 hours**

Shallow Concentrated Flow

	Segment ID			
7. Surface Description				
8. Flow Length, L	ft			
9. Watercourse Slope, s	ft/ft			
10. Average Velocity, V (NEH table 15-3)	ft/s			
11. Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	+	+	

Shallow Conc. Flow Sub-Total **0.000 hours**

Channel Flow

	Segment ID	3		
12. Flow Length, L	ft	20		
13. Cross Sectional flow area, a	ft^2	1.23		
14. Wetted Perimeter, P_w	ft	3.93		
15. Hydraulic Radius, r $\quad r = a / P_w$	ft	0.31		
16. Channel Slope, s	ft/ft	0.005		
17. Manning's Roughness Coeff., n		0.013		
18. Velocity, V $\quad V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s	3.74		
19. Compute T_t $\quad T_t = \frac{L}{3600\,V}$	hr	0.001 +	+	

Channel Flow Sub-Total **0.001 hours**

Watershed or subarea T_c or T_t	Total Tc (hours) =	**0.034 hours**
(Add Sub-Total T_t from prior steps)	Total Tc (minutes) =	**2 minutes**

Project:	**Data Center at Bell Works**	**By:**	**BMW**	**Date:**	**7/23/2026**
Location:	**Holmdel, Monmouth County, NJ**	**Checked By:**	**LDS**	**Date Checked:**	**7/23/2026**

Circle One: Present [✓ **Developed**] **WQ-103 - Impervious (Current)**

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)

			Segment ID	**1**		
1.	Surface Description (NEH table 15-1)			**Smooth Surfaces**		
2.	Manning's Roughness Coeff., n (NEH table 15-1)			**0.011**		
3.	Design Flow Length, L_{des} (Total L_{des} < 100 ft)		ft	**100**		
4.	Two-year 24-hr rainfall, P_2		in	**3.35**		
5.	Land Slope, s		ft/ft	**0.012**		
6.	McCuen-Spiess Limit, L_{mcs} (max. 100 ft)	$L_{mcs} = (100\ s^{0.5})/n$	ft	**100**		
7.	Compute T_t	$T_t = \frac{0.007\ (nL_{des})^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	**0.024**	+	+

Sheet Flow Sub-Total **0.024 hours**

Shallow Concentrated Flow

			Segment ID	**2**		
8.	Surface Description			**Pavement**		
9.	Flow Length, L		ft	**75**		
10.	Watercourse Slope, s		ft/ft	**0.008**		
11.	Average Velocity, V (NEH table 15-3)		ft/s	**1.79**		
12.	Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	**0.012**	+	+

Shallow Conc. Flow Sub-Total **0.012 hours**

Channel Flow

			Segment ID	**3**		
13.	Flow Length, L		ft	**20**		
14.	Cross Sectional flow area, a		ft^2	**1.23**		
15.	Wetted Perimeter, P_w		ft	**3.93**		
16.	Hydraulic Radius, r	$r = a / P_w$	ft	**0.31**		
17.	Channel Slope, s		ft/ft	**0.005**		
18.	Manning's Roughness Coeff., n			**0.013**		
19.	Velocity, V	$V = (1.49\ r^{2/3} s^{1/2}) / n$	ft/s	**3.74**		
20.	Compute T_t	$T_t = \frac{L}{3600\ V}$	hr	**0.001**	+	+

Channel Flow Sub-Total **0.001 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) = **0.038 hours**
Total Tc (minutes) = **2 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: Present [✓ Developed] **Proposed Watershed 2B - Pervious (Current)**

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)		Segment ID	1	2	
1. Surface Description (NEH table 15-1)			Short Grass Prairie	Smooth Surfaces	
2. Manning's Roughness Coeff., n (NEH table 15-1)			0.15	0.011	
3. Design Flow Length, L_{des} (Total L_{des} < 100 ft)		ft	28	66	
4. Two-year 24-hr rainfall, P_2		in	3.35	3.35	
5. Land Slope, s		ft/ft	0.015	0.012	
6. McCuen-Spiess Limit, L_{mcs} (max. 100 ft)	$L_{mcs} = (100\,s^{0.5})/n$	ft	83	100	
7. Compute T_t	$T_t = \frac{0.007\,(nL_{des})^{0.8}}{P_2^{0.5}s^{0.4}}$	hr	0.064 +	0.018 +	

Sheet Flow Sub-Total **0.082 hours**

Shallow Concentrated Flow		Segment ID	3		
8. Surface Description			Pavement		
9. Flow Length, L		ft	71		
10. Watercourse Slope, s		ft/ft	0.013		
11. Average Velocity, V (NEH table 15-3)		ft/s	2.29		
12. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	0.009 +	+	

Shallow Conc. Flow Sub-Total **0.009 hours**

Channel Flow		Segment ID	4		
13. Flow Length, L		ft	210		
14. Cross Sectional flow area, a		ft^2	2.89		
15. Wetted Perimeter, P_w		ft	6.02		
16. Hydraulic Radius, r	$r = a / P_w$	ft	0.48		
17. Channel Slope, s		ft/ft	0.004		
18. Manning's Roughness Coeff., n			0.013		
19. Velocity, V	$V = (1.49\,r^{2/3}s^{1/2})/n$	ft/s	4.68		
20. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	0.012		

Channel Flow Sub-Total **0.012 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) =	**0.103 hours**
Total Tc (minutes) =	**6 minutes**

Project: Data Center at Bell Works **By:** BMW **Date:** 7/23/2026

Location: Holmdel, Monmouth County, NJ **Checked By:** LDS **Date Checked:** 7/23/2026

Circle One: Present [✓ Developed] WQ-104 - Impervious (Current)

Circle One: [✓ T_c] T_t **through subarea**

Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to T_c Only)		Segment ID	1		
1. Surface Description (NEH table 15-1)			Smooth Surfaces		
2. Manning's Roughness Coeff., n (NEH table 15-1)			0.011		
3. Design Flow Length, L_{des} (Total L_{des} < 100 ft)		ft	100		
4. Two-year 24-hr rainfall, P_2		in	3.35		
5. Land Slope, s		ft/ft	0.005		
6. McCuen-Spiess Limit, L_{mcs} (max. 100 ft)	$L_{mcs} = (100\, s^{0.5})/n$	ft	100		
7. Compute T_t	$T_t = \frac{0.007\,(nL_{des})^{0.8}}{P_2^{0.5}\, s^{0.4}}$	hr	0.036	+	+

Sheet Flow Sub-Total **0.036 hours**

Shallow Concentrated Flow		Segment ID	2		
8. Surface Description			Pavement		
9. Flow Length, L		ft	99		
10. Watercourse Slope, s		ft/ft	0.013		
11. Average Velocity, V (NEH table 15-3)		ft/s	2.28		
12. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	0.012	+	+

Shallow Conc. Flow Sub-Total **0.012 hours**

Channel Flow		Segment ID	3		
13. Flow Length, L		ft	210		
14. Cross Sectional flow area, a		ft^2	2.89		
15. Wetted Perimeter, P_w		ft	6.02		
16. Hydraulic Radius, r	$r = a / P_w$	ft	0.48		
17. Channel Slope, s		ft/ft	0.005		
18. Manning's Roughness Coeff., n			0.013		
19. Velocity, V	$V = (1.49\, r^{2/3} s^{1/2}) / n$	ft/s	4.97		
20. Compute T_t	$T_t = \frac{L}{3600\,V}$	hr	0.012		

Channel Flow Sub-Total **0.012 hours**

Watershed or subarea T_c or T_t
(Add Sub-Total T_t from prior steps)

Total Tc (hours) = **0.059 hours**

Total Tc (minutes) = **4 minutes**

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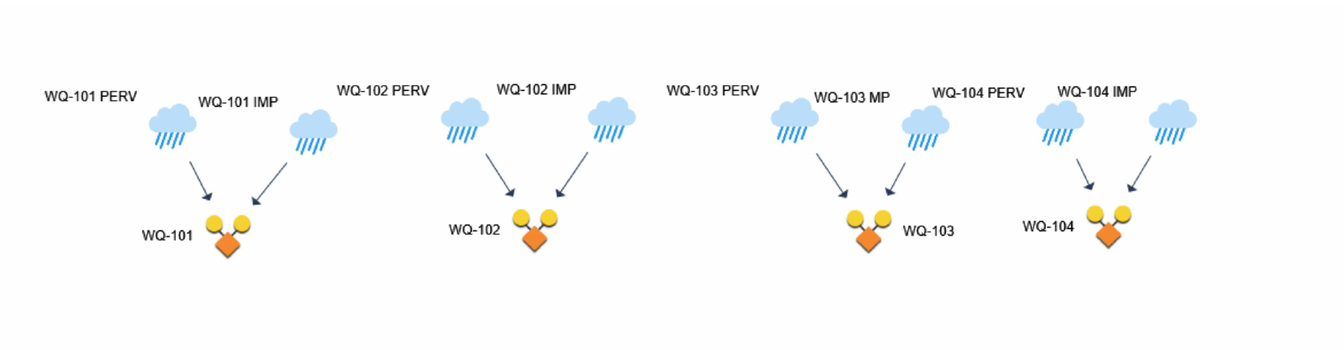
WQ-101 PERV
WQ-101 IMP
WQ-102 PERV
WQ-102 IMP
WQ-103 PERV
WQ-103 MP
WQ-104 PERV
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Hydrograph by Return Period

Hydrology Studio v 3.0.0.44

File: 102054601 - WQ.hys
07-23-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	WQ-101 PERV	0.000							
2	NRCS Runoff	WQ-101 IMP	1.570							
3	Junction	WQ-101	1.570							
4	NRCS Runoff	WQ-102 PERV	0.000							
5	NRCS Runoff	WQ-102 IMP	1.449							
6	Junction	WQ-102	1.449							
7	NRCS Runoff	WQ-103 PERV	0.000							
8	NRCS Runoff	WQ-103 MP	1.238							
9	Junction	WQ-103	1.238							
10	NRCS Runoff	WQ-104 PERV	0.000							
11	NRCS Runoff	WQ-104 IMP	0.878							
12	Junction	WQ-104	0.878							

Hydrograph 1-yr Summary

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (min)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	WQ-101 PERV	0.000	0	0.000	----		
2	NRCS Runoff	WQ-101 IMP	1.570	65	1,934	----		
3	Junction	WQ-101	1.570	65	1,934	1, 2		
4	NRCS Runoff	WQ-102 PERV	0.000	0	0.000	----		
5	NRCS Runoff	WQ-102 IMP	1.449	65	1,785	----		
6	Junction	WQ-102	1.449	65	1,785	4, 5		
7	NRCS Runoff	WQ-103 PERV	0.000	0	0.000	----		
8	NRCS Runoff	WQ-103 MP	1.238	65	1,525	----		
9	Junction	WQ-103	1.238	65	1,525	7, 8		
10	NRCS Runoff	WQ-104 PERV	0.000	0	0.000	----		
11	NRCS Runoff	WQ-104 IMP	0.878	66	1,157	----		
12	Junction	WQ-104	0.878	66	1,157	10, 11		

WQ-101 PERV

Hyd. No. 1

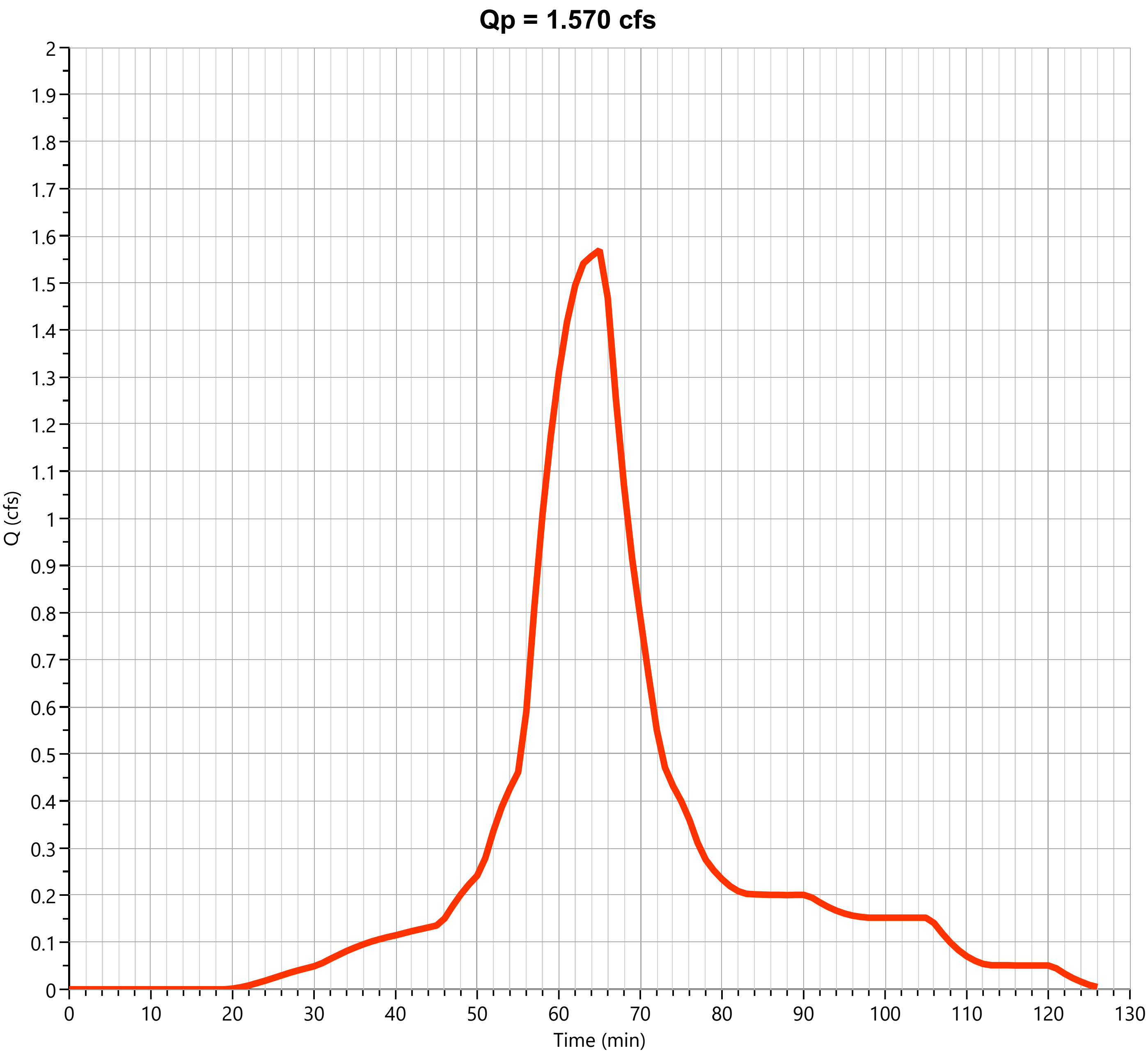
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.59 ac	Curve Number	= 60.00
Tc Method	= User	Time of Conc. (Tc)	= 8.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284

Qp = 0.000 cfs

WQ-101 IMP

Hyd. No. 2

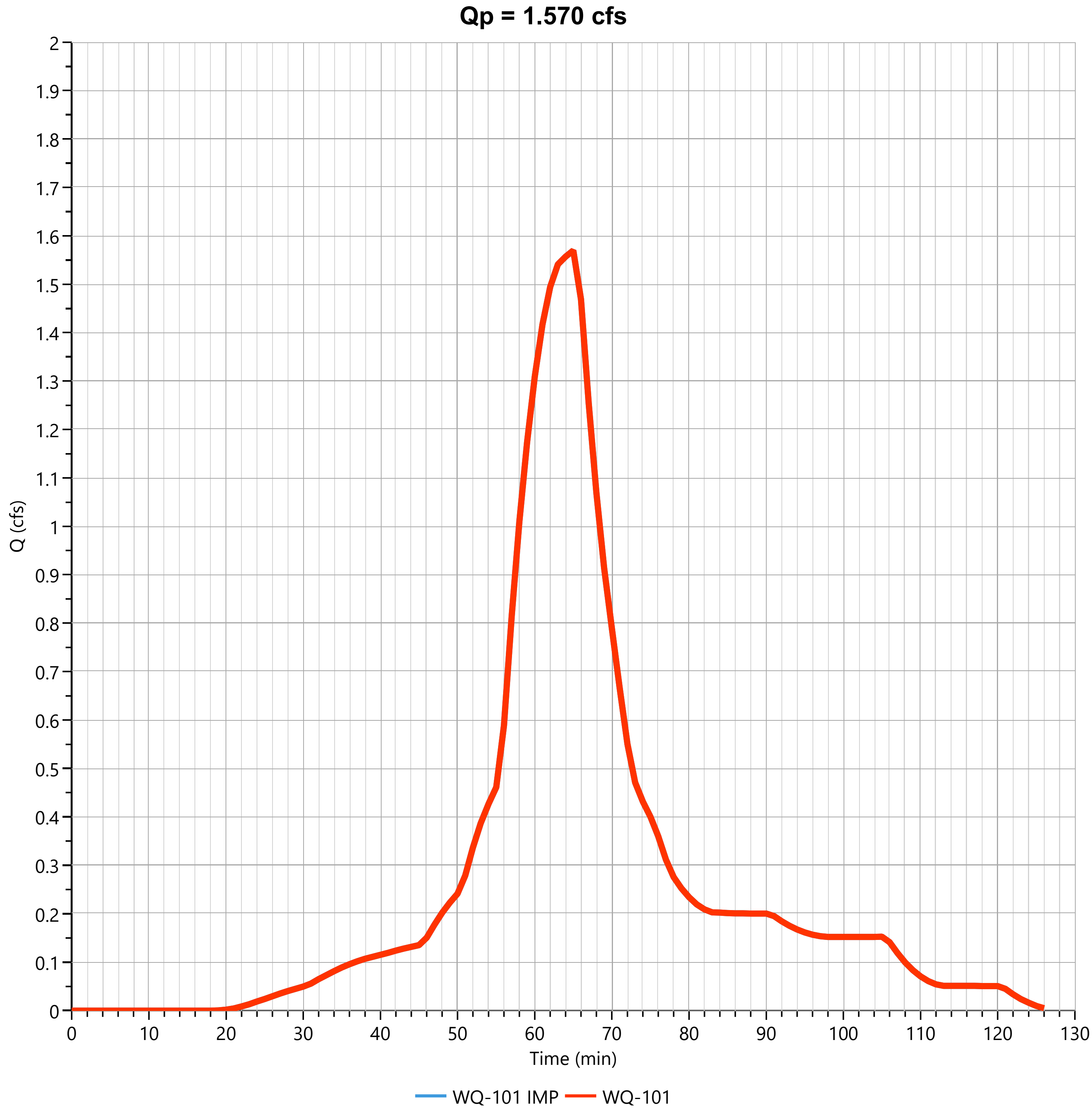
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.570 cfs
Storm Frequency	= 1-yr	Time to Peak	= 65 min
Time Interval	= 1 min	Runoff Volume	= 1,934 cuft
Drainage Area	= 0.52 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 2.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284



WQ-101

Hyd. No. 3

Hydrograph Type	= Junction	Peak Flow	= 1.570 cfs
Storm Frequency	= 1-yr	Time to Peak	= 65 min
Time Interval	= 1 min	Hydrograph Volume	= 1,934 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 1.11 ac



WQ-102 PERV

Hyd. No. 4

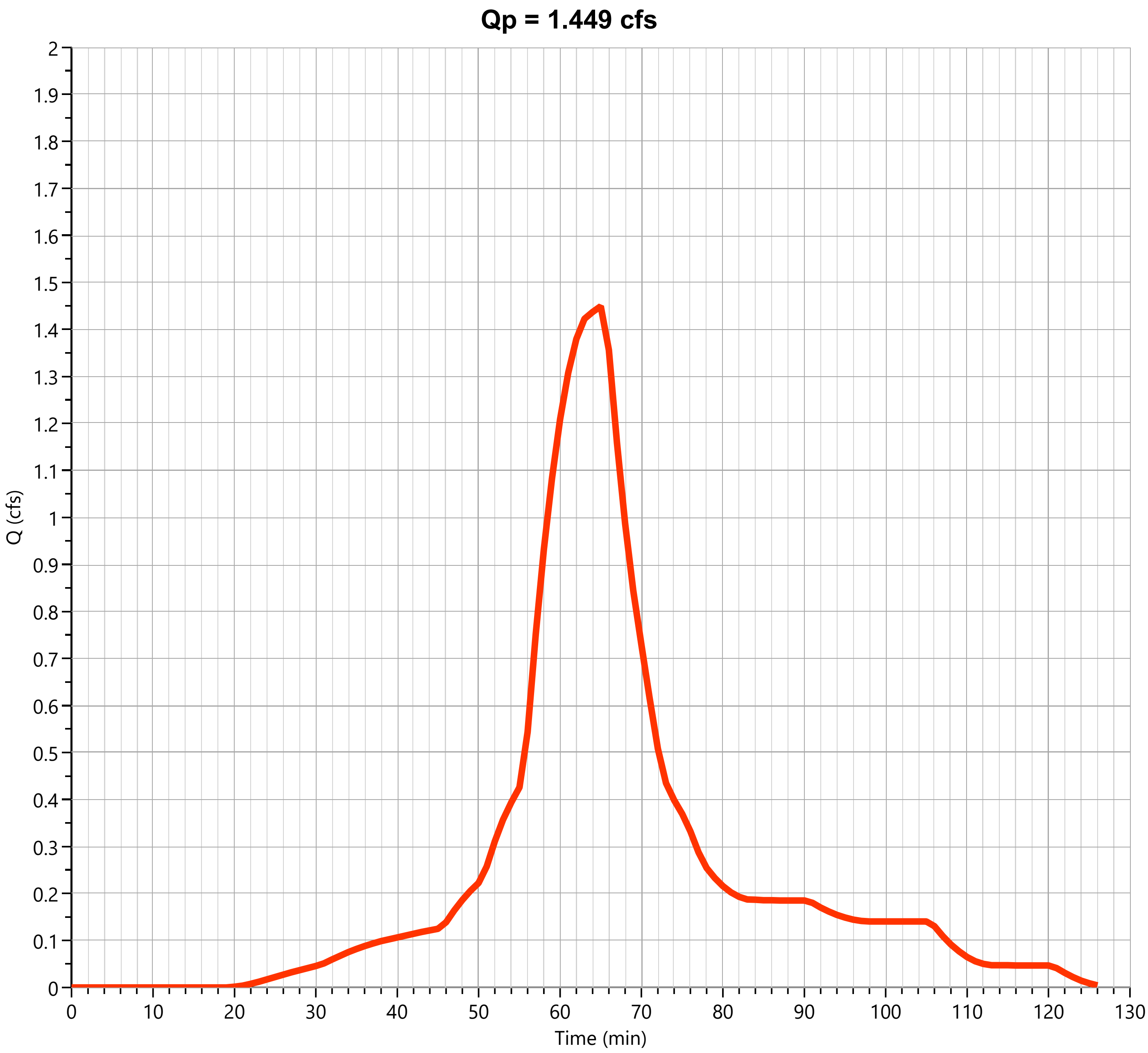
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.48 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 8.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284

Qp = 0.000 cfs

WQ-102 IMP

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.449 cfs
Storm Frequency	= 1-yr	Time to Peak	= 65 min
Time Interval	= 1 min	Runoff Volume	= 1,785 cuft
Drainage Area	= 0.48 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 3.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284

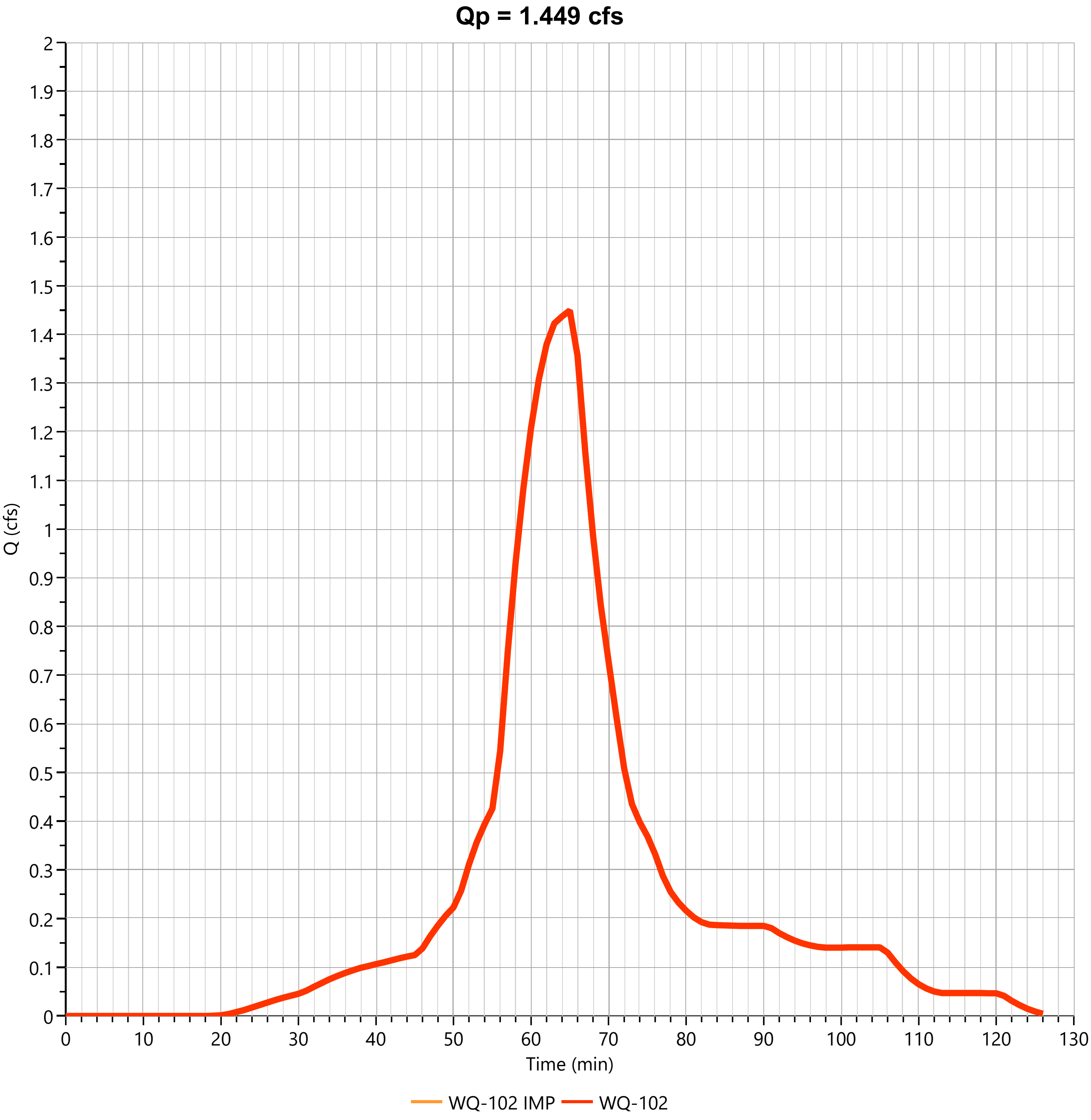


Hydrograph Report

WQ-102

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 1.449 cfs
Storm Frequency	= 1-yr	Time to Peak	= 65 min
Time Interval	= 1 min	Hydrograph Volume	= 1,785 cuft
Inflow Hydrographs	= 4, 5	Total Contrib. Area	= 0.96 ac



WQ-103 PERV

Hyd. No. 7

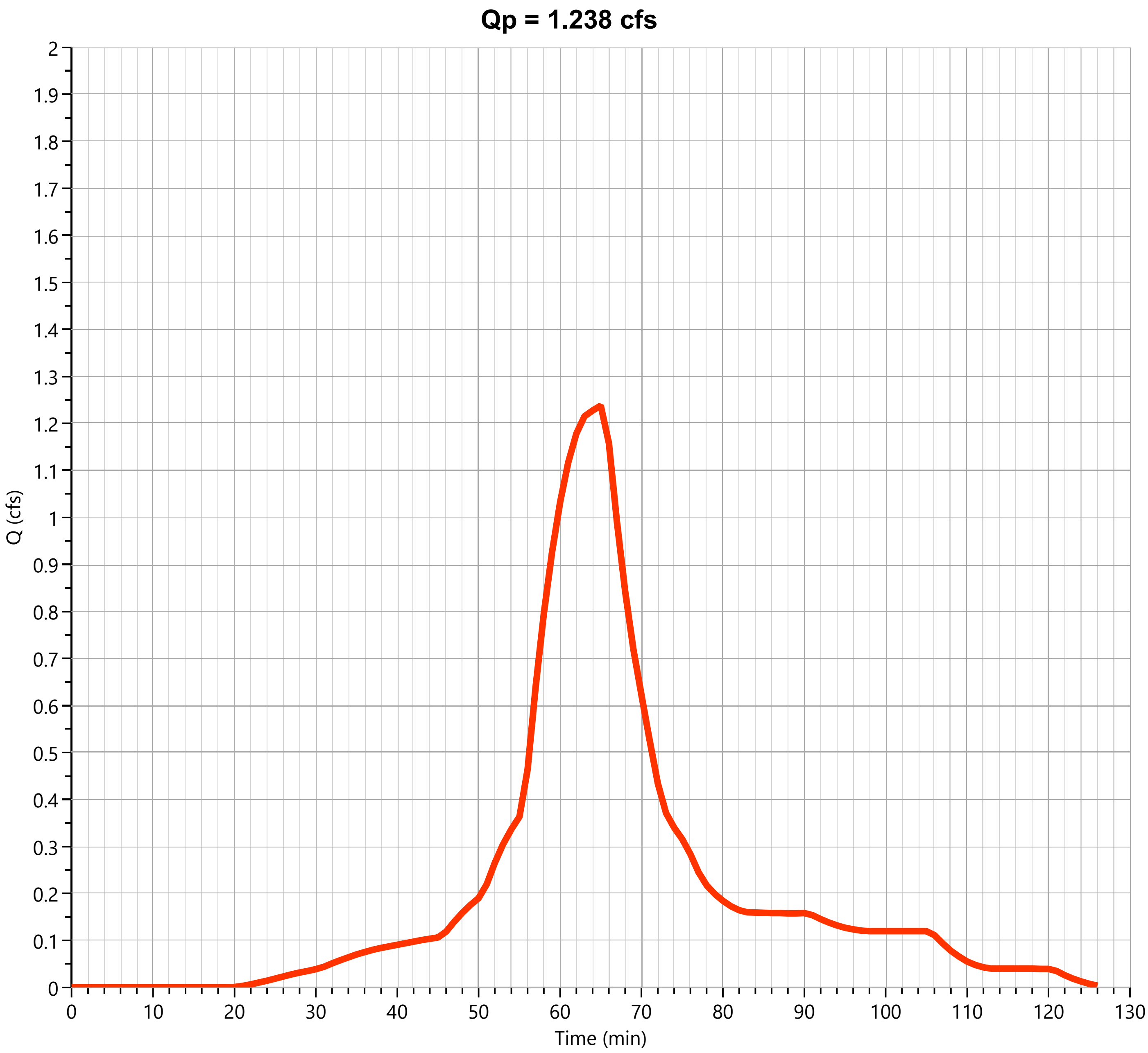
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.04 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 2.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284

Qp = 0.000 cfs

WQ-103 MP

Hyd. No. 8

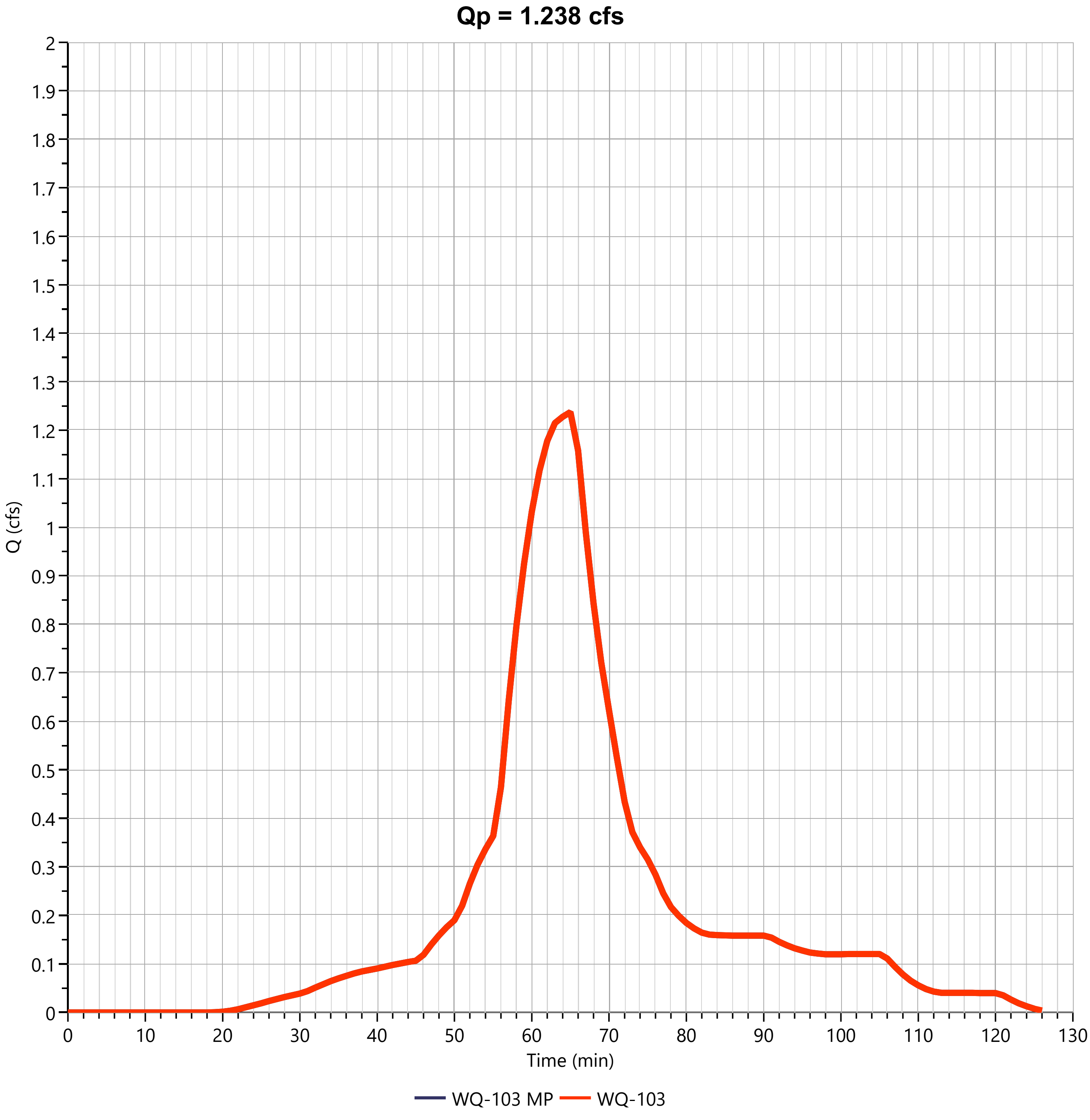
Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.238 cfs
Storm Frequency	= 1-yr	Time to Peak	= 65 min
Time Interval	= 1 min	Runoff Volume	= 1,525 cuft
Drainage Area	= 0.41 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 2.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284



WQ-103

Hyd. No. 9

Hydrograph Type	= Junction	Peak Flow	= 1.238 cfs
Storm Frequency	= 1-yr	Time to Peak	= 65 min
Time Interval	= 1 min	Hydrograph Volume	= 1,525 cuft
Inflow Hydrographs	= 7, 8	Total Contrib. Area	= 0.45 ac



WQ-104 PERV

Hyd. No. 10

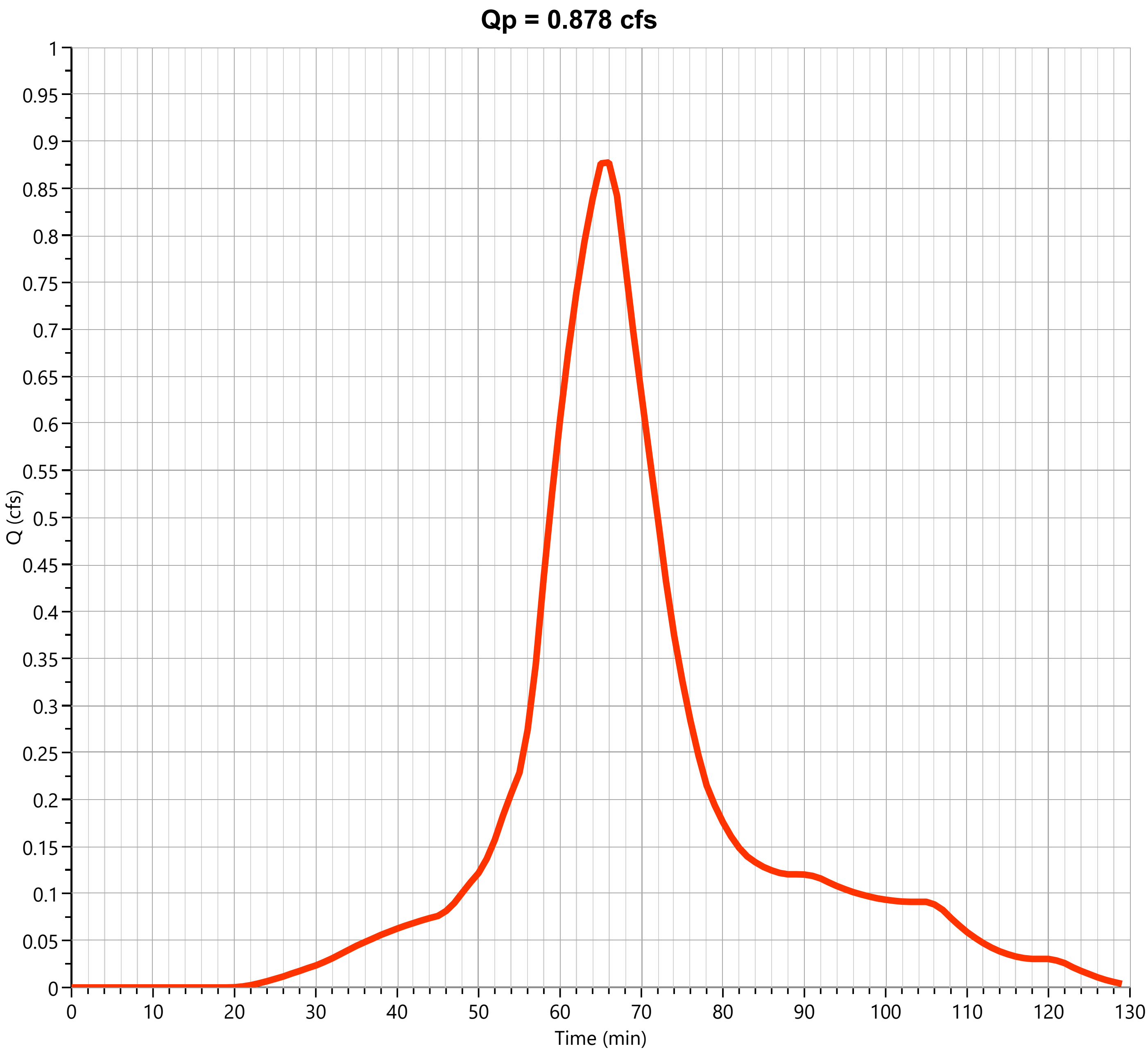
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0 min
Time Interval	= 1 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.07 ac	Curve Number	= 61.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284

Qp = 0.000 cfs

WQ-104 IMP

Hyd. No. 11

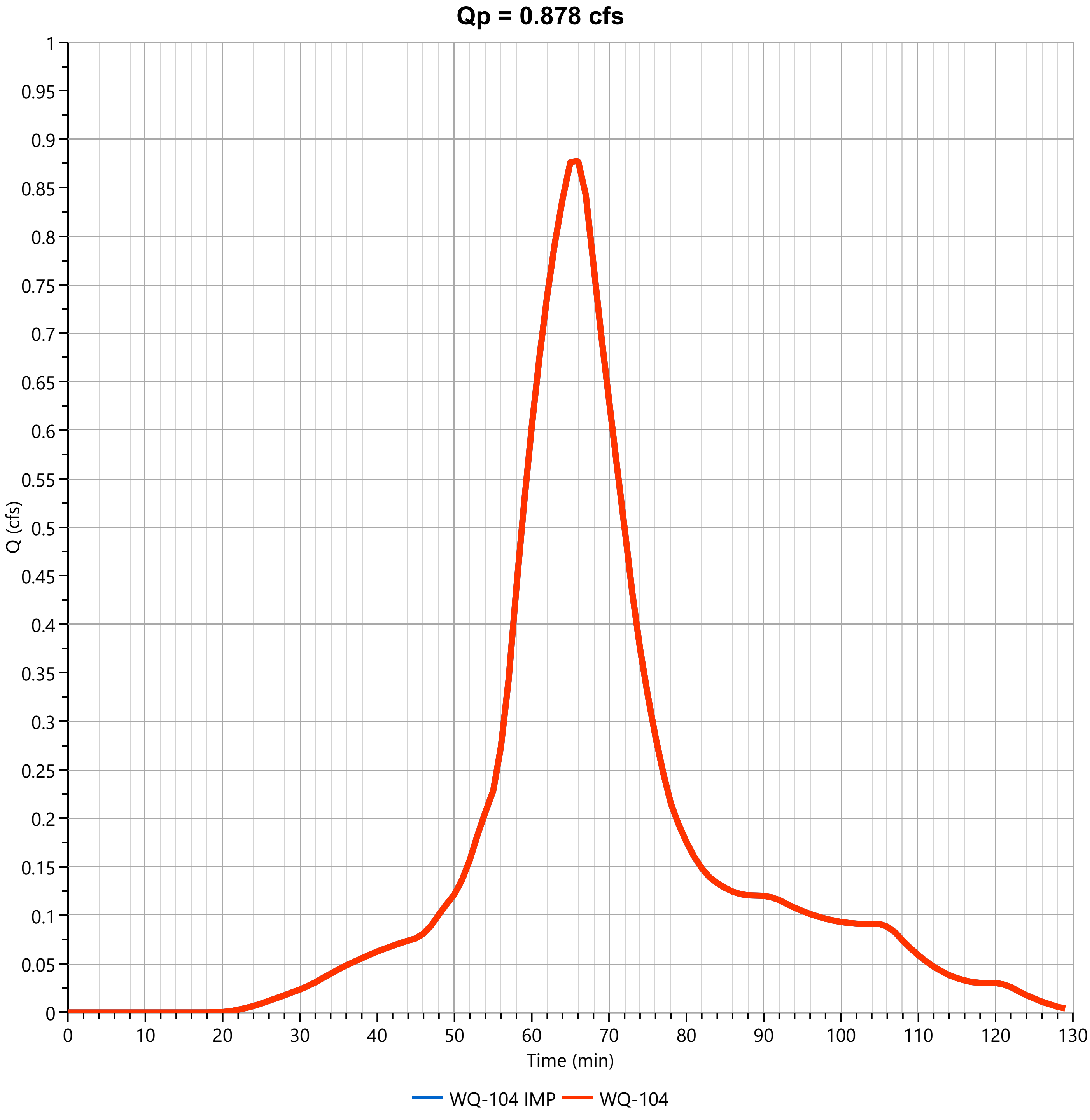
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.878 cfs
Storm Frequency	= 1-yr	Time to Peak	= 66 min
Time Interval	= 1 min	Runoff Volume	= 1,157 cuft
Drainage Area	= 0.3 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 4.0 min
Total Rainfall	= 1.25 in	Design Storm	= NJ WQ Storm
Storm Duration	= 2 hrs	Shape Factor	= 284



WQ-104

Hyd. No. 12

Hydrograph Type	= Junction	Peak Flow	= 0.878 cfs
Storm Frequency	= 1-yr	Time to Peak	= 66 min
Time Interval	= 1 min	Hydrograph Volume	= 1,157 cuft
Inflow Hydrographs	= 10, 11	Total Contrib. Area	= 0.37 ac



Configuration	Media Bay Size	Effective Filtration Treatment Area (ft^2)	Maximum Treatment Flow Rate (cfs)	Maximum Inflow Drainage Area (acres)
Inline Configuration Rapterra and Rapterra Bioscape Vaults	36" Manhole	6.85	0.149	0.082
	48" Manhole	12.35	0.269	0.148
	4x4	15.79	0.344	0.189
	60" Manhole	19.42	0.423	0.233
	6x4 or 4x6	23.79	0.518	0.285
	72" Manhole	28.06	0.611	0.337
	8x4 or 4x8	31.40	0.684	0.377
	4.5x7.83 or 7.83x4.5	34.64	0.755	0.416
	6x6	35.40	0.771	0.425
	8x6 or 6x8	47.40	1.033	0.569
	10x6 or 6x10	59.01	1.286	0.708
	12x6 or 6x12	71.01	1.547	0.852
	13x7 or 7x13	90.01	1.961	1.080
	14x8	110.38	2.405	1.325
	16x8	126.38	2.754	1.517
Peak Diversion Rapterra Vaults	4x4 (6x4 Vault)	15.79	0.344	0.189
	4x6 (8x4 Vault)	23.79	0.518	0.285
	6x4 (6x6 Vault)	23.79	0.518	0.285
	4.5x5.83 (7.83 x 4.5 Vault)	26.02	0.567	0.312
	6x6 (8x6 Vault)	35.79	0.780	0.429
	6x8 (10x6 Vault)	47.79	1.041	0.573
	6x10 (12x6 Vault)	59.62	1.299	0.715
	7x10 (13x7 Vault)	69.62	1.517	0.835
	8x10.5 (14x8 Vault)	83.62	1.822	1.003
	8x12.5 (16x8 Vault)	99.62	2.171	1.195
	8x14 (18x8 Vault)	111.23	2.424	1.335
	8x16 (20x8 Vault)	127.23	2.772	1.527
	8x18 (22x8 Vault)	143.23	3.121	1.719
	Custom and/or Rapterra Bioscape	Media Area in ft^2 (MA)	0.02179 * MA	0.012 * MA

APPENDIX C

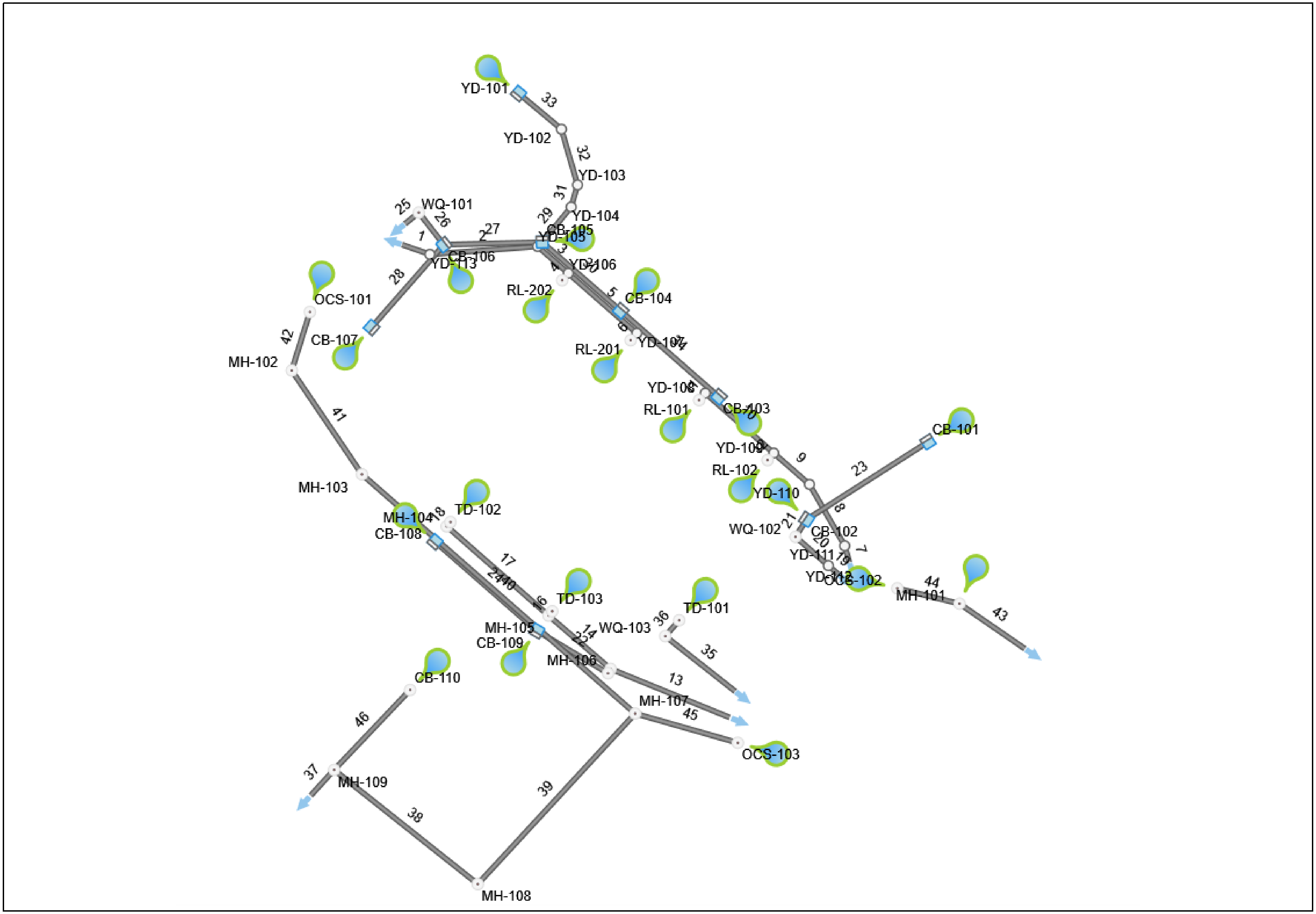
Stormwater Conveyance System Calculations

Plan View

Stormwater Studio 2026 v 3.0.0.42

Project Name: 102054601-STORM

07-23-2026


YD-101
33
YD-102
32
YD-103
31
YD-104
29
CB-105
YD-105
25
WQ-101
26
27
2
1
CB-106
YD-113
3
4
YD-106
5
CB-104
28
OCS-101
RL-202
CB-107
42
MH-102
6
YD-107
RL-201
YD-108
CB-103
RL-101
41
YD-109
9
CB-101
23
RL-102
YD-110
MH-103
8
MH-104
TD-102
CB-108
WQ-102
21
CB-102
7
YD-111
20
19
YD-112
OCS-102
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MH-101
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TD-103
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14
WQ-103
35
MH-105
CB-109
MH-106
CB-110
13
MH-107
45
46
OCS-103
37
MH-109
39
38
MH-108

Storm Sewer Tabulation

Stormwater Studio 2026 v 3.0.0.42

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
YD-113 - FES-102	27.39	0.000	0.620	0.00	0.00	0.61	0.0	11.00	6.62	4.07	15.64	3.31	15	5.00	103.37	102.00	106.59	106.50	110.29	103.46	1
YD-105 - YD-113	104.51	0.000	0.620	0.00	0.00	0.61	0.0	10.58	6.72	4.12	13.09	4.12	15	3.50	107.29	103.63	108.10	106.69	111.48	110.29	2
YD-106 - YD-105	39.43	0.000	0.620	0.00	0.00	0.61	0.0	10.44	6.75	4.14	7.00	5.18	15	1.00	107.78	107.39	108.59	108.13	111.69	111.48	3
RL-202 - YD-106	9.00	0.300	0.300	0.99	0.30	0.30	10.0	10.00	6.85	2.03	3.86	4.20	12	1.00	109.00	108.91	109.61	109.49	111.52	111.69	4
YD-107 - YD-106	88.00	0.000	0.320	0.00	0.00	0.32	0.0	10.04	6.84	2.17	3.86	3.65	12	1.00	108.91	108.03	109.53	108.86	111.67	111.69	5
RL-201 - YD-107	9.00	0.320	0.320	0.99	0.32	0.32	10.0	10.00	6.85	2.17	3.86	4.30	12	1.00	109.00	108.91	109.63	109.51	111.50	111.67	6
YD-111 - FES-103	15.66	0.000	0.650	0.00	0.00	0.64	0.0	10.84	6.66	4.28	15.64	3.49	15	5.00	103.28	102.50	105.06	105.00	107.61	103.96	7
YD-110 - YD-111	68.45	0.000	0.650	0.00	0.00	0.64	0.0	10.61	6.71	4.32	7.00	5.33	15	1.00	105.68	105.00	106.52	105.74	110.62	107.61	8
YD-109 - YD-110	45.94	0.000	0.650	0.00	0.00	0.64	0.0	10.46	6.74	4.34	7.00	5.28	15	1.00	107.83	107.37	108.66	108.13	111.62	110.62	9
YD-108 - YD-109	88.00	0.000	0.320	0.00	0.00	0.32	0.0	10.04	6.84	2.17	3.86	3.51	12	1.00	108.91	108.03	109.53	108.97	111.67	111.62	10
RL-101 - YD-108	9.00	0.320	0.320	0.99	0.32	0.32	10.0	10.00	6.85	2.17	3.86	4.30	12	1.00	109.00	108.91	109.63	109.51	111.50	111.67	11
RL-102 - YD-109	9.00	0.330	0.330	0.99	0.33	0.33	10.0	10.00	6.85	2.24	3.86	4.35	12	1.00	109.00	108.91	109.64	109.52	111.50	111.62	12
MH-106 - FES-106	123.42	0.000	0.950	0.00	0.00	0.89	0.0	11.38	6.54	5.81	15.50	1.85	24	0.40	102.99	102.50	105.07	105.00	108.55	104.75	13
MH-105 - MH-106	79.17	0.000	0.580	0.00	0.00	0.57	0.0	10.66	6.70	3.85	4.93	3.89	15	0.50	104.36	103.97	105.22	105.02	109.05	108.55	14
WQ-104 - MH-106	4.91	0.000	0.370	0.00	0.00	0.31	0.0	11.26	6.57	2.06	15.45	0.66	24	0.40	103.01	102.99	105.15	105.15	108.65	108.55	15
TD-103 - MH-105	5.55	0.270	0.270	0.99	0.27	0.27	10.0	10.00	6.85	1.83	4.63	4.10	12	1.44	106.00	105.92	106.58	106.45	109.87	109.05	16
MH-104 - MH-105	130.88	0.000	0.310	0.00	0.00	0.31	0.0	10.02	6.84	2.10	3.86	3.45	12	1.00	105.92	104.61	106.53	105.55	109.05	109.05	17
TD-102 - MH-104	5.50	0.310	0.310	0.99	0.31	0.31	10.0	10.00	6.85	2.10	4.65	4.30	12	1.45	106.00	105.92	106.62	106.50	109.87	109.05	18
YD-112 - FES-104	11.15	0.000	0.960	0.00	0.00	0.60	0.0	11.36	6.55	3.90	3.86	4.96	12	1.00	102.61	102.50	105.11	105.00	107.01	103.69	19
WQ-102 - YD-112	42.27	0.000	0.960	0.00	0.00	0.60	0.0	11.21	6.58	3.92	3.86	4.99	12	1.00	104.57	104.15	105.78	105.34	109.30	107.01	20
CB-102 - WQ-102	20.01	0.640	0.960	0.58	0.37	0.60	10.0	11.15	6.59	3.92	3.86	5.57	12	1.00	107.10	106.90	107.94	107.74	109.02	109.30	21
CB-109 - WQ-104	79.99	0.090	0.370	0.84	0.08	0.31	10.0	10.86	6.65	2.09	7.80	3.35	14x23e	0.50	105.74	105.34	106.09	105.92	108.64	108.65	22

Notes: IDF File = Holmdel - IDF.idf, Return Period = 100-yrs. r = rectangular e = elliptical a = arch

Project File: 2026-07-23 BELL WORKS STORMV2.sws

Storm Sewer Tabulation

Stormwater Studio 2026 v 3.0.0.42

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
CB-101 - CB-102	139.17	0.320	0.320	0.70	0.22	0.22	10.0	10.00	6.85	1.53	2.72	2.01	12	0.50	107.89	107.20	108.79	108.59	110.54	109.02	23
CB-108 - CB-109	130.88	0.280	0.280	0.85	0.24	0.24	10.0	10.00	6.85	1.63	7.04	2.54	14x23e	0.40	106.27	105.74	106.62	106.39	108.64	108.64	24
WQ-101 - FES-101	16.25	0.000	1.130	0.00	0.00	0.67	0.0	12.73	6.28	4.22	5.44	3.44	15	0.61	103.10	103.00	106.56	106.50	107.60	104.46	25
CB-106 - WQ-101	39.50	0.440	1.130	0.52	0.23	0.67	10.0	12.53	6.31	4.24	4.94	3.46	15	0.50	105.63	105.43	106.93	106.79	109.71	107.60	26
CB-105 - CB-106	95.02	0.030	0.480	0.69	0.02	0.25	10.0	11.79	6.46	1.60	2.73	2.08	12	0.50	106.37	105.89	107.29	107.14	111.04	109.71	27
CB-107 - CB-106	106.25	0.210	0.210	0.93	0.20	0.20	10.0	10.00	6.85	1.34	2.73	3.48	12	0.50	106.89	106.36	107.38	106.85	109.64	109.71	28
YD-104 - CB-105	44.02	0.000	0.150	0.00	0.00	0.04	0.0	11.05	6.61	0.25	2.37	2.41	10	1.00	107.53	107.09	107.75	107.28	113.77	111.04	29
CB-104 - CB-105	100.86	0.170	0.300	0.62	0.11	0.19	10.0	11.12	6.60	1.25	2.73	2.37	12	0.50	106.97	106.47	107.49	107.35	110.58	111.04	30
YD-103 - YD-104	22.28	0.000	0.150	0.00	0.00	0.04	0.0	10.88	6.65	0.25	5.81	3.34	10	6.00	112.34	111.00	112.56	111.13	118.00	113.77	31
YD-102 - YD-103	56.05	0.000	0.150	0.00	0.00	0.04	0.0	10.44	6.75	0.25	5.81	3.59	10	6.00	118.46	115.10	118.68	115.22	123.00	118.00	32
YD-101 - YD-102	53.98	0.150	0.150	0.25	0.04	0.04	10.0	10.00	6.85	0.26	2.37	2.45	10	1.00	119.00	118.46	119.23	118.65	121.07	123.00	33
CB-103 - CB-104	126.31	0.130	0.130	0.65	0.08	0.08	10.0	10.00	6.85	0.58	2.73	1.88	12	0.50	107.70	107.07	108.03	107.70	110.72	110.58	34
WQ-103 - FES-105	85.15	0.000	0.450	0.00	0.00	0.42	0.0	10.08	6.83	2.89	4.95	2.35	15	0.50	102.93	102.50	105.15	105.00	107.80	103.96	35
TD-101 - WQ-103	20.44	0.450	0.450	0.94	0.42	0.42	10.0	10.00	6.85	2.90	4.97	4.23	15	0.50	105.36	105.26	106.05	105.94	107.52	107.80	36
MH-109 - HW-102	32.54	0.000	0.660	0.00	0.00	0.22	0.0	11.06	6.61	9.37	24.49	3.15	24	1.00	91.33	91.00	93.01	93.00	97.16	91.40	37
MH-108 - MH-109	177.50	0.000	0.000	0.00	0.00	0.00	0.0	2.81	6.85	7.89	17.33	5.18	24	0.50	93.19	92.30	94.18	93.26	102.35	97.16	38
MH-107 - MH-108	224.44	0.000	0.000	0.00	0.00	0.00	0.0	1.99	6.85	7.89	17.36	4.53	24	0.50	94.32	93.19	95.31	94.40	108.62	102.35	39
MH-103 - MH-107	351.15	0.000	0.000	0.00	0.00	0.00	0.0	0.78	6.85	5.22	8.04	4.88	18	0.50	98.65	96.89	99.53	97.76	109.72	108.62	40
MH-102 - MH-103	121.26	0.000	0.000	0.00	0.00	0.00	0.0	0.29	6.85	5.22	8.04	4.90	18	0.50	99.35	98.75	100.23	99.62	106.36	109.72	41
OCS-101 - MH-102	59.22	0.000	0.000	0.00	0.00	0.00	0.0	0.00	6.85	5.22	8.04	3.35	18	0.50	99.75	99.45	100.89	100.82	103.00	106.36	42
MH-101 - HW-101	75.68	1.000	1.000	0.29	0.29	0.29	10.0	10.00	6.85	8.17	26.68	8.72	18	5.50	97.76	93.60	98.85	94.23	103.78	95.27	43
OCS-102 - MH-101	61.97	0.000	0.000	0.00	0.00	0.00	0.0	0.00	6.85	6.18	11.38	5.64	18	1.00	99.25	98.63	100.20	99.47	102.50	103.78	44

Notes: IDF File = Holmdel - IDF.idf, Return Period = 100-yrs. r = rectangular e = elliptical a = arch

Project File: 2026-07-23 BELL WORKS STORMV2.sws

Storm Sewer Tabulation

Stormwater Studio 2026 v 3.0.0.42

Project Name: 102054601-STORM

07-23-2026

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
OCS-103 - MH-107	103.19	0.000	0.000	0.00	0.00	0.00	0.0	0.00	6.85	2.67	11.37	4.39	18	1.00	97.25	96.22	97.87	96.74	102.50	108.62	45
CB-110 - MH-109	106.64	0.660	0.660	0.34	0.22	0.22	10.0	10.00	6.85	1.54	4.95	1.68	15	0.50	92.61	92.08	93.34	93.29	95.43	97.16	46

Notes: IDF File = Holmdel - IDF.idf, Return Period = 100-yrs.

Project File: 2026-07-23 BELL WORKS STORMV2.sws

Energy Grade Line Calculations

Stormwater Studio 2026 v 3.0.0.42

Project Name: 102054601-STORM

07-23-2026

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
1	15	4.07	102.00	1.25	1.23	106.50	3.31	0.17	106.67	27.39	103.37	1.25	1.23	106.59	3.31	0.17	106.76	0.012	0.093	106.63	106.80	0.03
2	15	4.12	103.63	1.25	1.23	106.69	3.36	0.18	106.87	104.51	107.29	0.81[2]	0.84	108.10	4.88	0.37	108.47	0.012	1.605	108.10	108.47	0.00
3	15	4.14	107.39	0.74‡	0.76	108.13	5.48	0.47	108.57	39.43	107.78	0.81[2]	0.85	108.59	4.89	0.37	108.97	0.012	0.394	108.59	108.97	0.00
4	12	2.03	108.91	0.58‡	0.47	109.49	4.34	0.29	109.78	9.00	109.00	0.61	0.50	109.61	4.07	0.26	109.87	0.012	0.090	109.69	109.95	0.08
5	12	2.17	108.03	0.83	0.70	108.86	3.11	0.15	109.01	88.00	108.91	0.62[2]	0.52	109.53	4.20	0.27	109.81	0.012	0.798	109.53	109.81	0.00
6	12	2.17	108.91	0.60‡	0.49	109.51	4.42	0.30	109.85	9.00	109.00	0.63	0.52	109.63	4.18	0.27	109.90	0.012	0.045	109.72	109.99	0.09
7	15	4.28	102.50	1.25	1.23	105.00	3.49	0.19	105.19	15.66	103.28	1.25	1.23	105.06	3.49	0.19	105.25	0.012	0.059	105.10	105.29	0.04
8	15	4.32	105.00	0.74‡	0.76	105.74	5.68	0.50	106.22	68.45	105.68	0.83[2]	0.87	106.52	4.98	0.39	106.90	0.012	0.685	106.52	106.90	0.00
9	15	4.34	107.37	0.76‡	0.78	108.13	5.57	0.48	108.59	45.94	107.83	0.83[2]	0.87	108.66	4.99	0.39	109.05	0.012	0.460	108.66	109.05	0.00
10	12	2.17	108.03	0.94	0.77	108.97	2.83	0.12	109.10	88.00	108.91	0.62[2]	0.52	109.53	4.20	0.27	109.81	0.012	0.713	109.53	109.81	0.00
11	12	2.17	108.91	0.60‡	0.49	109.51	4.42	0.30	109.85	9.00	109.00	0.63	0.52	109.63	4.18	0.27	109.90	0.012	0.045	109.72	109.99	0.09
12	12	2.24	108.91	0.61‡	0.50	109.52	4.47	0.31	109.83	9.00	109.00	0.64	0.53	109.64	4.24	0.28	109.92	0.012	0.090	109.73	110.01	0.09
13	24	5.81	102.50	2.00	3.14	105.00	1.85	0.05	105.05	123.42	102.99	2.00	3.14	105.07	1.85	0.05	105.12	0.012	0.069	105.10	105.15	0.03
14	15	3.85	103.97	1.05	1.10	105.02	3.50	0.19	105.21	79.17	104.36	0.86	0.90	105.22	4.29	0.29	105.50	0.012	0.295	105.33	105.62	0.12
15	24	2.06	102.99	2.00	3.14	105.15	0.66	0.01	105.15	4.91	103.01	2.00	3.14	105.15	0.66	0.01	105.15	0.012	0.000	105.15	105.15	0.00
16	12	1.83	105.92	0.53‡	0.43	106.45	4.28	0.29	106.73	5.55	106.00	0.58	0.47	106.58	3.91	0.24	106.81	0.012	0.080	106.64	106.88	0.07
17	12	2.10	104.61	0.94	0.76	105.55	2.75	0.12	105.66	130.88	105.92	0.61[2]	0.51	106.53	4.15	0.27	106.80	0.012	1.138	106.53	106.80	0.00
18	12	2.10	105.92	0.58‡	0.47	106.50	4.48	0.31	106.84	5.50	106.00	0.62	0.51	106.62	4.13	0.27	106.88	0.012	0.038	106.70	106.97	0.08
19	12	3.90	102.50	1.00	0.79	105.00	4.96	0.38	105.38	11.15	102.61	1.00	0.79	105.11	4.96	0.38	105.50	0.012	0.114	105.19	105.57	0.08
20	12	3.92	104.15	1.00	0.79	105.34	4.99	0.39	105.73	42.27	104.57	1.00	0.79	105.78	4.98	0.39	106.16	0.012	0.435	105.91	106.29	0.13
21	12	3.92	106.90	0.84‡	0.70	107.74	5.59	0.49	108.22	20.01	107.10	0.84	0.71	107.94	5.56	0.48	108.42	0.012	0.200	108.14	108.62	0.20
22	14x23e	2.09	105.34	0.58[1]	0.99	105.92	2.12	0.07	105.99	79.99	105.74	0.35	0.45	106.09	4.59	0.33	106.42	0.012	0.422	106.09	106.42	0.00

Notes: Return Period = 100-yrs. [1] Critical depth. [2] Critical depth. ‡ Supercritical. r = rectangular e = elliptical a = arch

Project File: 2026-07-23 BELL WORKS STORMV2.sws

Energy Grade Line Calculations

Stormwater Studio 2026 v 3.0.0.42

Project Name: 102054601-STORM

07-23-2026

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
	(in)	(cfs)	Invert Elev (ft)	Depth (ft)	Area (sqft)	HGL Elev (ft)	Vel (ft/s)	Vel Head (ft)	EGL Elev (ft)	(ft)	Invert Elev (ft)	Depth (ft)	Area (sqft)	HGL Elev (ft)	Vel (ft/s)	Vel Head (ft)	EGL Elev (ft)	n Value	Enrgy Loss (ft)	HGLa Elev (ft)	EGLa Elev (ft)	Enrgy Loss (ft)
23	12	1.53	107.20	1.00	0.79	108.59	1.95	0.06	108.65	139.17	107.89	0.90	0.74	108.79	2.06	0.07	108.85	0.012	0.208	108.82	108.88	0.03
24	14x23e	1.63	105.74	0.65	1.09	106.39	1.49	0.03	106.43	130.88	106.27	0.35	0.45	106.62	3.58	0.20	106.82	0.012	0.391	106.62	106.82	0.00
25	15	4.22	103.00	1.25	1.23	106.50	3.44	0.18	106.68	16.25	103.10	1.25	1.23	106.56	3.44	0.18	106.74	0.012	0.059	106.72	106.90	0.16
26	15	4.24	105.43	1.25	1.23	106.79	3.46	0.19	106.97	39.50	105.63	1.25	1.23	106.93	3.46	0.19	107.12	0.012	0.145	107.00	107.18	0.07
27	12	1.60	105.89	1.00	0.79	107.14	2.04	0.06	107.21	95.02	106.37	0.92	0.76	107.29	2.12	0.07	107.36	0.012	0.153	107.31	107.38	0.02
28	12	1.34	106.36	0.49‡	0.38	106.85	3.50	0.19	107.20	106.25	106.89	0.49	0.39	107.38	3.47	0.19	107.57	0.012	0.365	107.49	107.68	0.11
29	10	0.25	107.09	0.19‡	0.09	107.28	2.69	0.11	107.39	44.02	107.53	0.22^2	0.12	107.75	2.13	0.07	107.82	0.012	0.435	107.75	107.82	0.00
30	12	1.25	106.47	0.89	0.74	107.35	1.70	0.05	107.40	100.86	106.97	0.52	0.41	107.49	3.04	0.14	107.63	0.012	0.236	107.57	107.71	0.08
31	10	0.25	111.00	0.13‡	0.05	111.13	4.55	0.32	111.29	22.28	112.34	0.22^2	0.12	112.56	2.14	0.07	112.63	0.012	1.337	112.56	112.63	0.00
32	10	0.25	115.10	0.12‡	0.05	115.22	5.02	0.39	115.39	56.05	118.46	0.22^2	0.12	118.68	2.15	0.07	118.76	0.012	3.363	118.68	118.76	0.00
33	10	0.26	118.46	0.19‡	0.09	118.65	2.75	0.12	118.76	53.98	119.00	0.23^2	0.12	119.23	2.16	0.07	119.30	0.012	0.535	119.23	119.30	0.00
34	12	0.58	107.07	0.63	0.52	107.70	1.12	0.02	107.72	126.31	107.70	0.32^2	0.22	108.03	2.64	0.11	108.13	0.012	0.418	108.03	108.13	0.00
35	15	2.89	102.50	1.25	1.23	105.00	2.35	0.09	105.09	85.15	102.93	1.25	1.23	105.15	2.35	0.09	105.23	0.012	0.145	105.16	105.25	0.02
36	15	2.90	105.26	0.68‡	0.68	105.94	4.24	0.28	106.22	20.44	105.36	0.68	0.69	106.05	4.21	0.28	106.32	0.012	0.103	106.12	106.39	0.07
37	24	9.37	91.00	2.00	3.14	93.00	2.98	0.14	93.14	32.54	91.33	1.69	2.83	93.01	3.31	0.17	93.18	0.012	0.046	93.14	93.31	0.13
38	24	7.89	92.30	0.96‡	1.49	93.26	5.30	0.44	93.69	177.50	93.19	0.99^2	1.56	94.18	5.06	0.40	94.58	0.012	0.888	94.18	94.58	0.00
39	24	7.89	93.19	1.20	1.97	94.40	4.00	0.25	94.64	224.44	94.32	0.99^2	1.56	95.31	5.06	0.40	95.71	0.012	1.068	95.31	95.71	0.00
40	18	5.22	96.89	0.87‡	1.06	97.76	4.92	0.38	98.14	351.15	98.65	0.88	1.08	99.53	4.85	0.37	99.89	0.012	1.756	99.70	100.07	0.17
41	18	5.22	98.75	0.87‡	1.06	99.62	4.92	0.38	100.12	121.26	99.35	0.88	1.07	100.23	4.87	0.37	100.60	0.012	0.475	100.55	100.92	0.32
42	18	5.22	99.45	1.37	1.69	100.82	3.09	0.15	100.97	59.22	99.75	1.14	1.45	100.89	3.61	0.20	101.10	0.012	0.126	100.93	101.14	0.04
43	18	8.17	93.60	0.63‡	0.71	94.23	11.51	2.06	95.43	75.68	97.76	1.09^2	1.38	98.85	5.93	0.55	99.40	0.012	3.968	98.85	99.40	0.00
44	18	6.18	98.63	0.84‡	1.02	99.47	6.04	0.57	100.01	61.97	99.25	0.95^2	1.18	100.20	5.24	0.43	100.63	0.012	0.620	100.20	100.63	0.00

Notes: Return Period = 100-yrs. ^{2} Critical depth. ‡ Supercritical. r = rectangular e = elliptical a = arch

Project File: 2026-07-23 BELL WORKS STORMV2.sws

Energy Grade Line Calculations

Stormwater Studio 2026 v 3.0.0.42

Project Name: 102054601-STORM

07-23-2026

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
	(in)	(cfs)	Invert Elev (ft)	Depth (ft)	Area (sqft)	HGL Elev (ft)	Vel (ft/s)	Vel Head (ft)	EGL Elev (ft)	(ft)	Invert Elev (ft)	Depth (ft)	Area (sqft)	HGL Elev (ft)	Vel (ft/s)	Vel Head (ft)	EGL Elev (ft)	n Value	Enrgy Loss (ft)	HGLa Elev (ft)	EGLa Elev (ft)	Enrgy Loss (ft)
45	18	2.67	96.22	0.52‡	0.54	96.74	4.95	0.38	97.07	103.19	97.25	0.62^2	0.69	97.87	3.84	0.23	98.10	0.012	1.030	97.87	98.10	0.00
46	15	1.54	92.08	1.21	1.22	93.29	1.26	0.02	93.32	106.64	92.61	0.72	0.74	93.34	2.09	0.07	93.40	0.012	0.085	93.35	93.42	0.01

Notes: Return Period = 100-yrs. ^{2} Critical depth. ‡ Supercritical.

Project File: 2026-07-23 BELL WORKS STORMV2.sws

APPENDIX D

Groundwater Recharge Documentation

LANGAN

Technical Excellence
Practical Experience
Client Responsiveness

July 22, 2026

George Kolovos
Terna Infrastructure USA, Inc.
1270 Avenue of the Americas
New York, NY 10020

Re: Stormwater Management Concerns
Former AT&T Bell Laboratories – Holmdel Facility
101 Crawfords Corner Road, Holmdel, New Jersey
NJDEP Program Interest (PI) #: 008311

Dear Mr Kolovos:

I have prepared this letter to bring to your attention some stormwater management concerns associated with redevelopment of the property located at 101 Crawfords Corner Road in Holmdel, New Jersey, also known as the Former AT&T Bell Laboratories - Holmdel Facility (the Property). As you are aware, I am the Licensed Site Remediation Professional (LSRP) charged with oversight of the environmental investigation and remediation of the Property. Investigation and remediation activities are currently being performed in coordination with the redevelopment activities planned by the GEK TERNA Group.

It has come to my attention that state and local stormwater regulations require that stormwater be managed using infiltration basins to provide groundwater recharge as part of the proposed development. I am concerned that measures proposed to address the groundwater recharge requirements could potentially exacerbate the existing groundwater constituent plumes beneath the Property. I am therefore recommending that induced artificial groundwater recharge be eliminated due to the potential effects that it may have on the groundwater constituent plumes at the Property.

Specifically, groundwater at the Property is impacted with constituents at concentrations that exceed New Jersey Department of Environmental Protection (NJDEP) Ground Water Quality Standards (GWQS). As such, multiple Classification Exception Areas (CEA) have been established for groundwater at the Property as an institutional control to document the extent of groundwater constituent plumes and restrict groundwater usage. In addition, per- and polyfluorinated alkyl substances (PFAS) have recently been identified in groundwater at concentrations exceeding the NJDEP GWQS throughout a large portion of the area in the vicinity of the proposed development footprint (see attached figure).

In my opinion, inducing additional recharge to groundwater at the Property could negatively affect the overall groundwater remediation strategy. Induced artificial recharge of groundwater in the subsurface could potentially expand and push the groundwater constituent plumes downward as well as sidegradient and further downgradient towards surface water bodies and, thereby, increase the extent of existing plumes. In addition, non-PFAS constituent plumes are being remediated using a monitored natural attenuation (MNA) approach and PFAS constituent plumes are anticipated to be remediated using a PFAS monitored retention (PMR) approach. Induced artificial recharge of stormwater could negatively affect the proposed MNA and PMR remedial approaches by changing the constituent concentration trends.

Based on this information and as the LSRP of record for the Property, I recommend that induced artificial groundwater recharge not occur at this site. Should you have any questions or comments, please do not hesitate to contact me at 215-491-6531 or at sdamon@langan.com

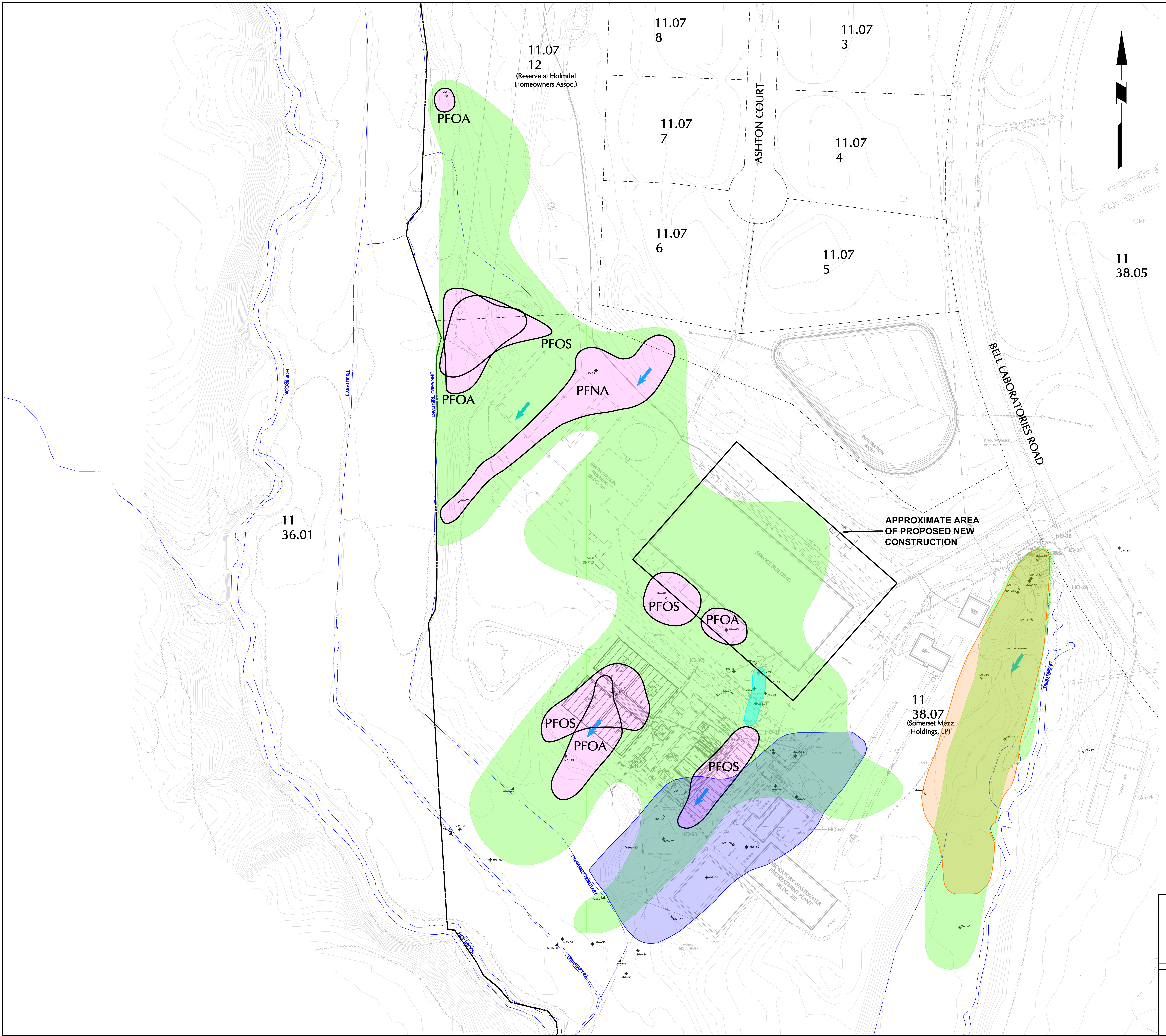
Sincerely,

Sean M. Damon

Sean M. Damon, PG, LSRP
Principal

Attachments: Figure 1 – Areas of NJDEP GQS Exceedances

cc: John Galasso, PE, Nokia
Zak Sabatka, PG, Nokia
Darren Hopper, PE, Langan


11.07
12
(Reserve at Holmdel Homeowners Assoc.)
11.07
8
11.07
3
11.07
7
11.07
4
ASHTON COURT
11.07
6
11.07
5
11
38.05
BELL LABORATORIES ROAD
PFOA
PFOS
PFOA
PFNA
11
36.01
HOP BROOK
TRIBUTARY 3
UNNAMED TRIBUTARY
APPROXIMATE AREA OF PROPOSED NEW CONSTRUCTION
SERVICE BUILDING
EARTH STATION BUILDING (BLDG. 16)
FRAME SHEDS
INFILTRATION BASIN
PFOS
PFOA
PFOS
PFOA
PFOS
11
38.07
(Somerset Mezz Holdings, LP)
TRIBUTARY #1
HO-2B
HO-2E
HO-2A
HO-3Q
HO-3P
HO-63
HO-62
LABORATORY WASTEWATER PRETREATMENT PLANT (BLDG. 29)
UNNAMED TRIBUTARY
HOP BROOK
TRIBUTARY #3

MONITORING WELL SPECIFICATIONS

Well Number	Installation Date	Total Depth (ft)	Screened Interval (ft)
MW–5	11/17/89	24.5	10–25
MW–6	11/17/89	21.5	5–20
MW–7	11/17/89	18.5	2–17
MW–22S	11/13/00	22.0	12–22
MW–24S	11/10/00	19.0	7–19
MW–25	11/12/00	24.0	10–24
MW–33S	11/09/00	19.0	4–19
MW–34	11/07/01	29.2	19.2–29.2
MW–35	11/07/01	15.2	5.2–15.2
MW–36	11/06/01	21.9	11.9–21.9
MW–37	11/09/01	22.2	12.2–22.2
MW–40	11/06/01	23.1	13.1–23.1
MW–43	10/24/02	30.0	20–30
MW–45	08/17/05	20.0	10–20
MW–46	08/17/05	20.5	10.5–20.5
MW–52R	10/08/24	22.0	12.0–22.0
MW–56	11/05/10	28.0	18–28
MW–57	11/17/10	29.6	19.6–29.6
MW–58	11/10/10	25.0	15–25
MW–59R	04/01/21	26.5	16.5–26.5
MW–60	11/17/10	24.6	14.6–24.6
MW–61	11/26/10	18.1	8.1–18.1
MW–62	11/02/23	21.0	11–21
MW–63	09/08/23	20.0	10–20
MW–64	09/08/23	19.0	9–19
MW–65	09/11/23	20.0	10–20
MW–66	08/29/23	14.0	4–14
MW–67	08/29/23	14.0	4–14
MW–68	08/29/23	14.0	4–14
MW–69	06/12/26	20.0	10–20
MW–70	06/11/26	15.0	5–15
MW–75	06/10/26	14.0	4–14
MPE–6	06/16/03	19.8	9.8–19.8
SMPE–4	06/17/03	18.7	4.5–18.7

LEGEND

⊕	EXISTING MONITORING WELL LOCATION
⊕	ABANDONED MONITORING WELL LOCATION
◪	STREAM GAUGE LOCATION
🟩	PFAS PLUME – PFOA, PFOS, AND OR PFNA ABOVE THE APPLICABLE NJDEP GQS OF 0.014 ng/L, 0.013 ng/L AND 0.013 ng/L RESPECTIVELY
🟦	DICAR AREA CEA (VOCs AND PAHs ABOVE THE NJDEP GQS)
🟧	RCRA AREA CEA (VOCs AND METALS ABOVE THE NJDEP GQS)
🟪	TCE IMPACTED AREA CEA (TCE ABOVE THE NJDEP GQS)
PFOA 🟪	GROUNDWATER PFOA CONCENTRATION ABOVE 100 ng/L
PFOS 🟪	GROUNDWATER PFOS CONCENTRATION ABOVE 100 ng/L
PFNA 🟪	GROUNDWATER PFNA CONCENTRATION ABOVE 200 ng/L
→	APPROXIMATE GROUNDWATER FLOW DIRECTION
— · · · —	LIMITS OF STREAM
━ ━ ━	PROPERTY BOUNDARY OF FORMER AT&T BELL LABORATORIES – HOLMDEL FACILITY
— — —	TAX PARCELS
11 38.05	LOT AND BLOCK DESIGNATIONS
- - - -	EDGE OF ASPHALT PAVEMENT
—— T ——	COMMUNICATION LINE
—LCW—	LABORATORY CLEAR WASTE LINE
—— S ——	SANITARY SEWER LINE
—— CW ——	COLD WATER LINE
—— W ——	TREATED WATER LINE
—— G ——	GAS LINE
—— FW ——	WATER LINE (FIRE)
—×—×—	FENCE LINE
⌒⌒⌒⌒	APPROXIMATE LIMIT OF WOODED AREA
PFAS	PER AND POLYFLUOROALKYL SUBSTANCES
PFOA	PERFLUOROOCTANOIC ACID
PFNA	PERFLUORONONANOIC ACID
PFOS	PERFLUOROCATANESULFONIC ACID
TCE	TRICHLOROETHENE
CEA	CLASSIFICATION EXCEPTION AREA
NJDEP GQS	NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION GROUNDWATER QUALITY STANDARD
ng/L	NANOGRAMS/LITER

50 0 25 50
SCALE IN FEET

NOTES

1. UTILITIES SHOWN ON THIS PLAN ARE BASED ON A MAP PREPARED BY MCLAREN/HART ENTITLED "SITE PLAN AND AREAS OF CONCERN MAP", DATED 12/29/98, AS WELL AS SUBSEQUENTLY–CONDUCTED UTILITY SURVEYS AND OTHER SITE PLANS. ALL UTILITY LOCATIONS SHOWN ARE APPROXIMATE AND SHOULD NOT BE RELIED UPON AS BEING ACCURATE.
2. ALL PFAS CONCENTRATIONS IN GROUNDWATER ARE LISTED IN ng/L (PARTS PER TRILLION). LIMITS OF PFAS PLUMES ARE APPROXIMATE AND ARE BASED ON SAMPLING DATA OBTAINED TO DATE.

REFERENCES

1. FEATURES AND EXISTING GROUND ELEVATION CONTOURS ARE BASED ON A DRAWING TITLED: 'MAJOR SUBDIVISION PLAN (PROPOSED CONFIGURATION)" DATED 5/23/14, PREPARED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES AND "PRELIMINARY & FINAL MAJOR SUBDIVISION PLAN – GRADING PLAN AREA 4" DATED 8/03/15, PREPARED BY KENNEDY CONSULTING ENGINEERS, LLC.
2. FORMER WASTE TREATMENT FEATURES SHOWN ON THIS FIGURE ARE FROM AT&T BELL LABORATORIES' FIGURE ENTITLED "HOLMDEL SANITARY WASTEWATER TREATMENT PLANT DEMOLITION PLAN," DATED 7/8/94.
3. LOT AND BLOCK INFORMATION OBTAINED FROM MONMOUTH COUNTY, NEW JERSEY, PUBLISHED JANUARY 2024.

Date	Description	No.

Revisions

LANGAN
Stone Manor Corporate Center, 2700 Kelly Road, Suite 200
Warrington, PA 18976
T: 215.491.6500 F: 215.491.6501 www.langan.com

Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan Engineering and Environmental Services, LLC
Langan International LLC
Collectively known as Langan

FORMER AT&T BELL LABORATORIES HOLMDEL FACILITY

HOLMDEL TWP. NEW JERSEY

Drawing Title

AREAS OF NJDEP GQS EXCEEDANCES

Job No.	3569201
Date	7/17/2026
Scale	1"=50'
Drn. By	GP
Chkd. By	KF

FIGURE
1

Filename: \\langan.com\data\DYL\data2\3569201\Cadd Data – 3569201\Dwg\2023 PFAS Investigation\GW Plume Map Updated.dwg Date: 7/21/2026 Time: 14:22 User: gpaley Style Table: Langan.stb Layout: LSRP PFOA Figure (2)

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APPENDIX E

Soil Erosion and Sediment Control Calculations

Based on "Standards for Soil Erosion and Sediment Control in New Jersey," dated 2014

TABLE 12-1 ALLOWABLE VELOCITIES FOR VARIOUS SOILS

SOIL TEXTURE	ALLOWABLE VELOCITY (ft./sec.)
1. Sand	1.8
2. Sandy Loam	2.5
3. Silt loam (also high lime clay), loam	3.0
4. Sandy clay loam	3.5
5. Clay loam	4.0
6. Clay, fine gravel, gradded loam to gravel	5.0
7. Cobbles	5.5
8. Shale (non-weathered)	6.0

Soil type where outfall is located = 1 (Note: Select number designating soil texture above)
allowable velocity = 1.8 ft/sec
v (velocity) = 3.44 ft/sec
Scour Hole required? **1** (1 = yes, 0 = no)

Given:

D_o (max inside height) = 1.25 feet
W_o (max inside width) = 1.25 feet
Q (discharge) = 5.44 cfs (100-year storm)
*q (unit discharge, = Q/W_o) = 4.4 cfs / foot
** T_w (tail water) = 1.23 feet

* for the 100 year storm
** for areas where T_w cannot be computed, use $T_w = 0.2\ D_o$. For discharge
into detention basins, Tw shall equal the 2 year "current" storm elevation in the basin.

Preformed Scour Hole Median Stone Diameter and Riprap Lining Thickness

Preformed scour holes may be utilized, where conditions dictate the impractical use of flat aprons. The median stone diameter, D50, in feet, shall be determined from the following formulas:

$$\boxed{D_{50} = \frac{0.0125}{T_w} q^{1.33}}$$

where Y = ½D_o = 0.625

D_{50} = 0.07 feet **Use 6 inches**

$$\boxed{D_{50} = \frac{0.0082}{T_w} q^{1.33}}$$

where Y = D_o = 1.25

D_{50} = 0.05 feet

Y = depth of scour hole below culvert invert

The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to possible problems with mosquito breeding.

Riprap lining shall have a thickness of at least three times the D_{50} size if a filter layer is not used and a thickness of at least two times the D_{50} size is a filter layer is used. A mimimum thickness shall be 8 inches

Liner not used = $3D_{50}$ = 1.50 feet
Liner used = $2D_{50}$ = 1.00 feet < 0.66 feet **Lining Thickness = 1.00 feet**

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

300 Kimball Drive Parsippany, NJ
P: 973.560.4900 F: 973.560.4901
NJ Certificate of Authorization No: 24GA27996400

Project:

Scour Hole Design - FES-101
Data Center at Bell Works

HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

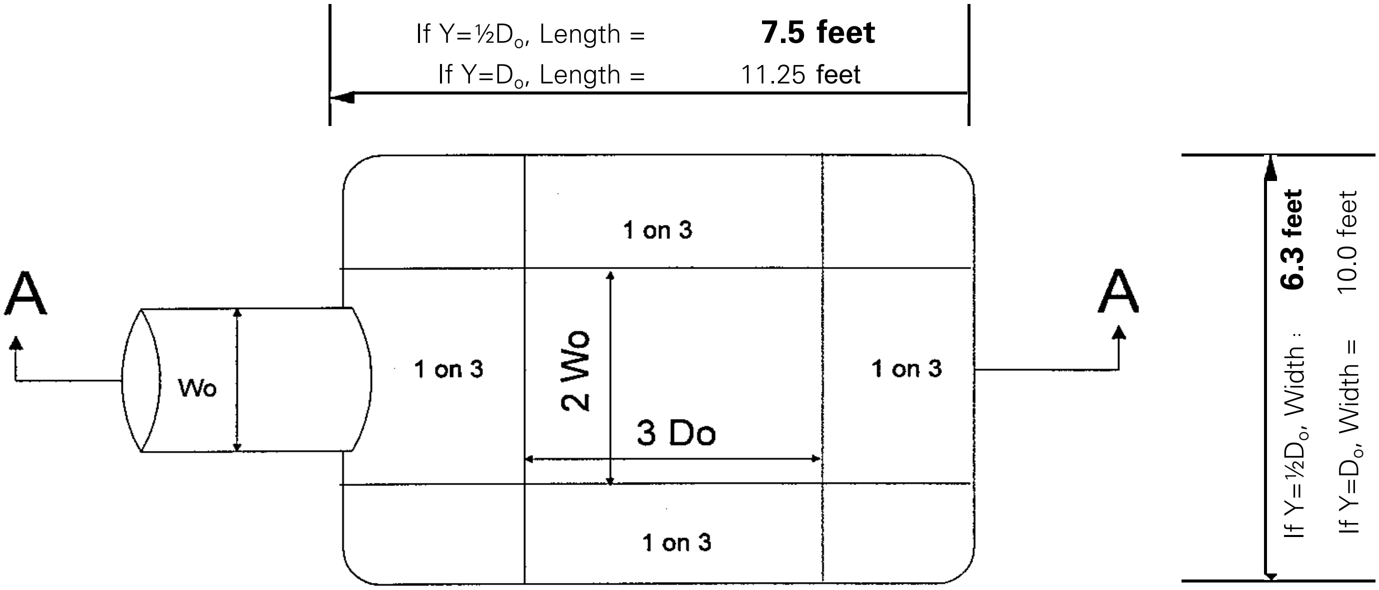
Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	1 of 2

Preformed Scour Hole Dimensions

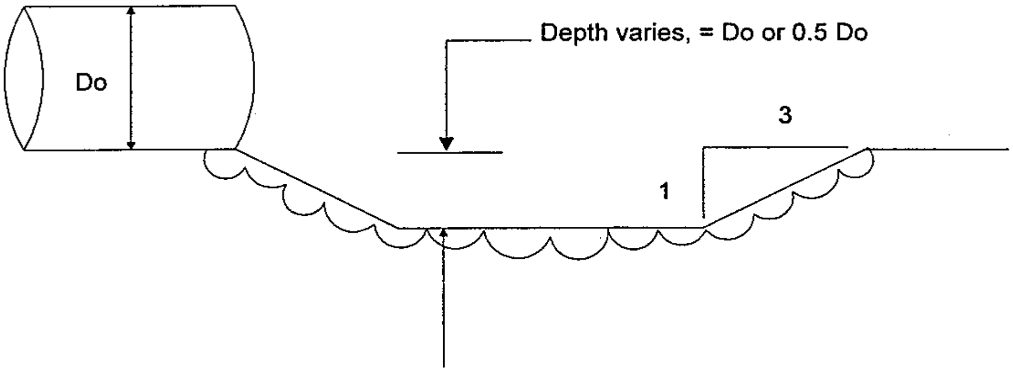
$2W_o$ =	**2.5 feet**
$3D_o$ =	**3.75 feet**
Y (Depth) =	**0.625 feet**

If Y=½D_o, Length = **7.5 feet**
If Y=D_o, Length = 11.25 feet

If Y=½D_o, Width : **6.3 feet**
If Y=D_o, Width = 10.0 feet


A
Wo
1 on 3
1 on 3
2 Wo
3 Do
1 on 3
1 on 3
A

PLAN


Do
Depth varies, = Do or 0.5 Do
3
1

Section A - A

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES
300 Kimball Drive Parsippany, NJ
P: 973.560.4900 F: 973.560.4901
NJ Certificate of Authorization No: 24GA27996400

Project:
Scour Hole Design - FES-101
Data Center at Bell Works
HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	2 of 2

Based on "Standards for Soil Erosion and Sediment Control in New Jersey," dated 2014

TABLE 12-1 ALLOWABLE VELOCITIES FOR VARIOUS SOILS

SOIL TEXTURE	ALLOWABLE VELOCITY (ft./sec.)
1. Sand	1.8
2. Sandy Loam	2.5
3. Silt loam (also high lime clay), loam	3.0
4. Sandy clay loam	3.5
5. Clay loam	4.0
6. Clay, fine gravel, gradded loam to gravel	5.0
7. Cobbles	5.5
8. Shale (non-weathered)	6.0

Soil type where outfall is located = 1 (Note: Select number designating soil texture above)
allowable velocity = 1.8 ft/sec
v (velocity) = 3.31 ft/sec
Scour Hole required? **1** (1 = yes, 0 = no)

Given:

D_o (max inside height) = 1.25 feet
W_o (max inside width) = 1.25 feet
Q (discharge) = 4.07 cfs (100-year storm)
*q (unit discharge, = Q/W_o) = 3.3 cfs / foot
** T_w (tail water) = 1.23 feet

* for the 100 year storm
** for areas where T_w cannot be computed, use $T_w = 0.2\ D_o$. For discharge
into detention basins, Tw shall equal the 2 year "current" storm elevation in the basin.

Preformed Scour Hole Median Stone Diameter and Riprap Lining Thickness

Preformed scour holes may be utilized, where conditions dictate the impractical use of flat aprons.
The median stone diameter, D50, in feet, shall be determined from the following formulas:

$$\boxed{D_{50} = \frac{0.0125}{T_w} q^{1.33}}$$

where Y = ½D_o = 0.625 **D_{50} = 0.05 feet** **Use 6 inches**

$$\boxed{D_{50} = \frac{0.0082}{T_w} q^{1.33}}$$

where Y = D_o = 1.25 D_{50} = 0.03 feet

Y = depth of scour hole below culvert invert

The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to possible problems with mosquito breeding.

Riprap lining shall have a thickness of at least three times the D_{50} size if a filter layer is not used and a thickness of at least two times the D_{50} size is a filter layer is used. A mimimum thickness shall be 8 inches

Liner not used = $3D_{50}$ = 1.50 feet
Liner used = $2D_{50}$ = 1.00 feet < 0.66 feet **Lining Thickness = 1.00 feet**

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

300 Kimball Drive Parsippany, NJ
P: 973.560.4900 F: 973.560.4901
NJ Certificate of Authorization No: 24GA27996400

Project:

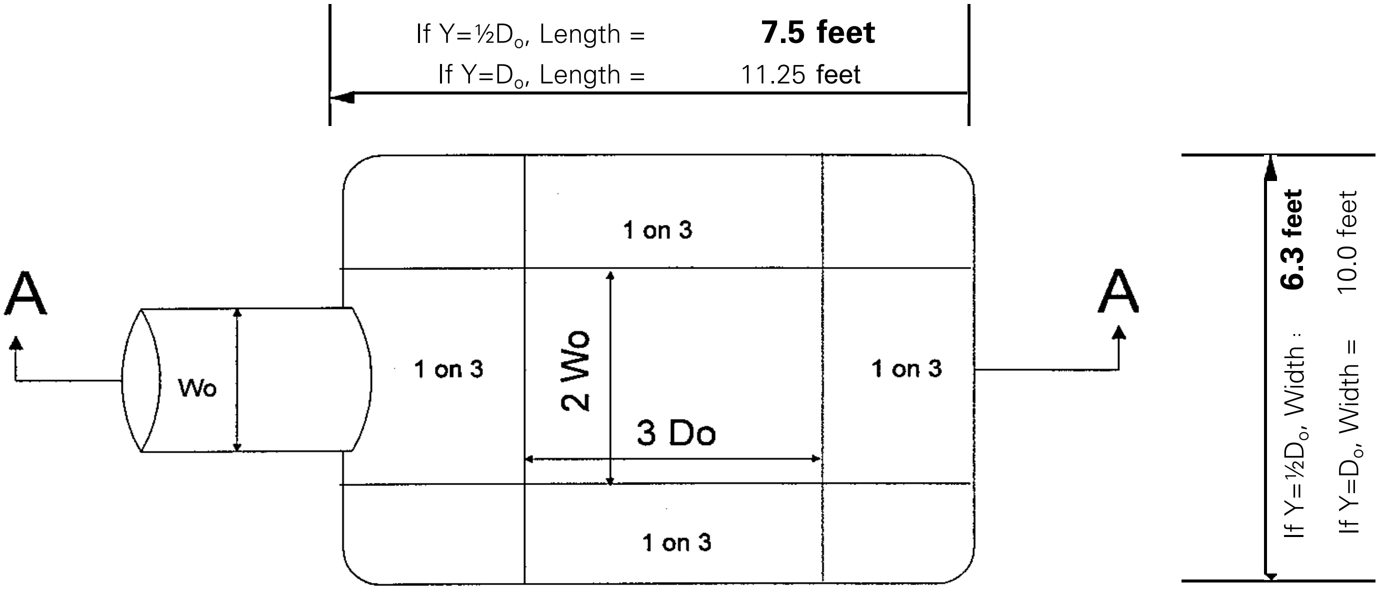
Scour Hole Design - FES-102
Data Center at Bell Works

HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	1 of 2

Preformed Scour Hole Dimensions

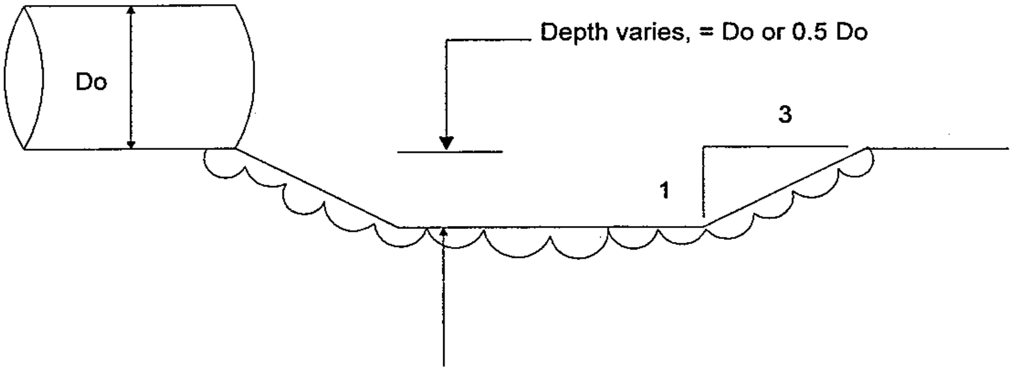
$2W_o$ = 2.5 feet
$3D_o$ = 3.75 feet
Y (Depth) = 0.625 feet


1 on 3
A
Wo
1 on 3
2 Wo
3 Do
1 on 3
A
1 on 3

If $Y=\frac{1}{2}D_o$, Length = **7.5 feet**
If $Y=D_o$, Length = 11.25 feet

If $Y=\frac{1}{2}D_o$, Width : **6.3 feet**
If $Y=D_o$, Width = 10.0 feet

PLAN


Do
Depth varies, = Do or 0.5 Do
3
1

Section A - A

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES
300 Kimball Drive Parsippany, NJ
P: 973.560.4900 F: 973.560.4901
NJ Certificate of Authorization No: 24GA27996400

Project:
Scour Hole Design - FES-102
Data Center at Bell Works
HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	2 of 2

Based on "Standards for Soil Erosion and Sediment Control in New Jersey," dated 2014

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1. Sand	1.8
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3. Silt loam (also high lime clay), loam	3.0
4. Sandy clay loam	3.5
5. Clay loam	4.0
6. Clay, fine gravel, gradded loam to gravel	5.0
7. Cobbles	5.5
8. Shale (non-weathered)	6.0

Soil type where outfall is located = 1 (Note: Select number designating soil texture above)
allowable velocity = 1.8 ft/sec
v (velocity) = 3.49 ft/sec
Scour Hole required? **1** (1 = yes, 0 = no)

Given:

D_o (max inside height) = 1.25 feet
W_o (max inside width) = 1.25 feet
Q (discharge) = 4.28 cfs (100-year storm)
*q (unit discharge, = Q/W_o) = 3.4 cfs / foot
** T_w (tail water) = 1.23 feet

* for the 100 year storm
** for areas where T_w cannot be computed, use $T_w = 0.2\ D_o$. For discharge into detention basins, Tw shall equal the 2 year "current" storm elevation in the basin.

Preformed Scour Hole Median Stone Diameter and Riprap Lining Thickness

Preformed scour holes may be utilized, where conditions dictate the impractical use of flat aprons. The median stone diameter, D50, in feet, shall be determined from the following formulas:

$$\boxed{D_{50} = \frac{0.0125}{T_w} q^{1.33}}$$

where Y = ½D_o = 0.625 **D_{50} = 0.05 feet** **Use 6 inches**

$$\boxed{D_{50} = \frac{0.0082}{T_w} q^{1.33}}$$

where Y = D_o = 1.25 D_{50} = 0.03 feet

Y = depth of scour hole below culvert invert

The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to possible problems with mosquito breeding.

Riprap lining shall have a thickness of at least three times the D_{50} size if a filter layer is not used and a thickness of at least two times the D_{50} size is a filter layer is used. A mimimum thickness shall be 8 inches

Liner not used = $3D_{50}$ = 1.50 feet
Liner used = $2D_{50}$ = 1.00 feet < 0.66 feet **Lining Thickness = 1.00 feet**

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ENGINEERING & ENVIRONMENTAL SERVICES

300 Kimball Drive Parsippany, NJ
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NJ Certificate of Authorization No: 24GA27996400

Project:

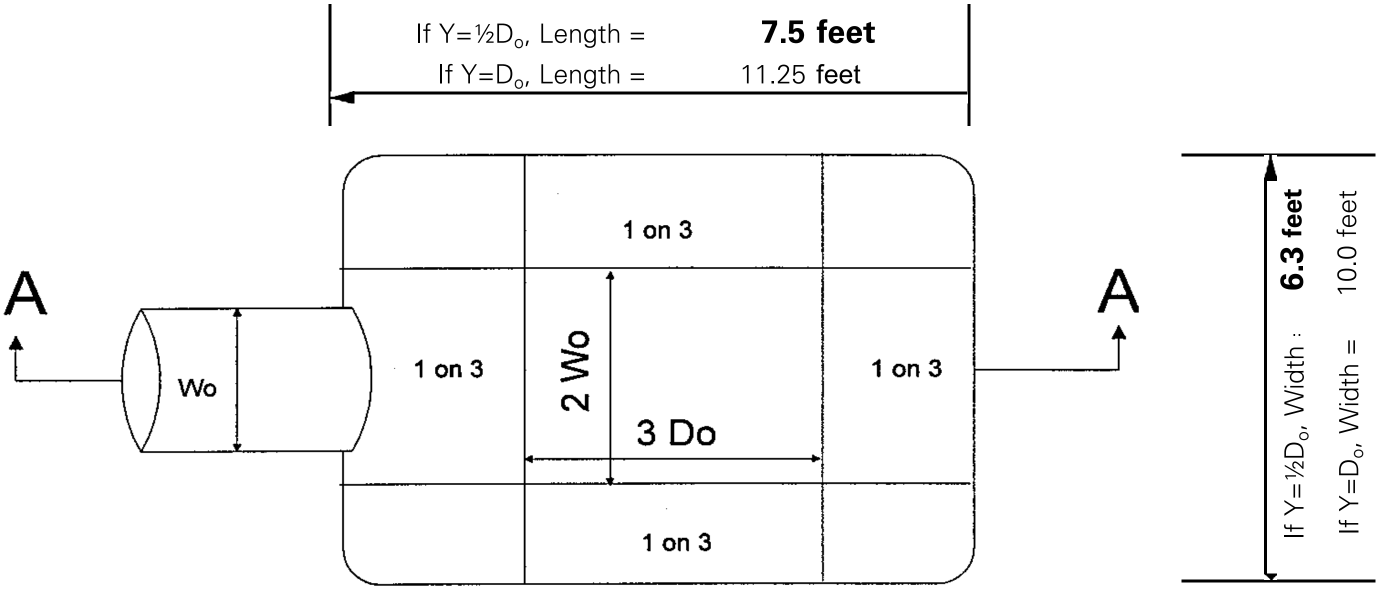
Scour Hole Design - FES-103
Data Center at Bell Works

HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

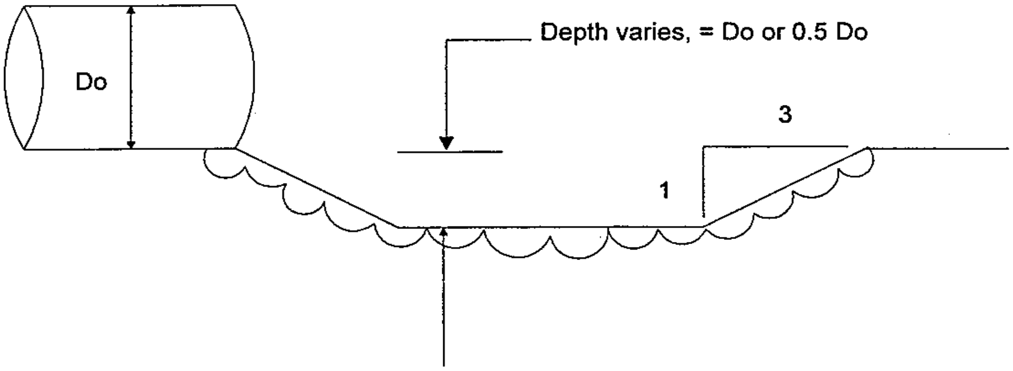
Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	1 of 2

Preformed Scour Hole Dimensions

$2W_o$ = 2.5 feet
$3D_o$ = 3.75 feet
Y (Depth) = 0.625 feet


If Y=½D_o, Length = **7.5 feet**
If Y=D_o, Length = 11.25 feet
A
A
Wo
1 on 3
1 on 3
1 on 3
1 on 3
2 Wo
3 Do
If Y=½D_o, Width : **6.3 feet**
If Y=D_o, Width = 10.0 feet

PLAN


Do
Depth varies, = Do or 0.5 Do
3
1

Section A - A

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Project:

Scour Hole Design - FES-103
Data Center at Bell Works
HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	2 of 2

Based on "Standards for Soil Erosion and Sediment Control in New Jersey," dated 2014

TABLE 12-1 ALLOWABLE VELOCITIES FOR VARIOUS SOILS

SOIL TEXTURE	ALLOWABLE VELOCITY (ft./sec.)
1. Sand	1.8
2. Sandy Loam	2.5
3. Silt loam (also high lime clay), loam	3.0
4. Sandy clay loam	3.5
5. Clay loam	4.0
6. Clay, fine gravel, gradded loam to gravel	5.0
7. Cobbles	5.5
8. Shale (non-weathered)	6.0

Soil type where outfall is located = 1 (Note: Select number designating soil texture above)
allowable velocity = 1.8 ft/sec
v (velocity) = 4.96 ft/sec
Scour Hole required? **1** (1 = yes, 0 = no)

Given:

D_o (max inside height) = 1 feet
W_o (max inside width) = 1 feet
Q (discharge) = 3.86 cfs (100-year storm)
*q (unit discharge, = Q/W_o) = 3.9 cfs / foot
** T_w (tail water) = 1.23 feet

* for the 100 year storm
** for areas where T_w cannot be computed, use $T_w = 0.2\ D_o$. For discharge into detention basins, Tw shall equal the 2 year "current" storm elevation in the basin.

Preformed Scour Hole Median Stone Diameter and Riprap Lining Thickness

Preformed scour holes may be utilized, where conditions dictate the impractical use of flat aprons. The median stone diameter, D50, in feet, shall be determined from the following formulas:

$$\boxed{D_{50} = \frac{0.0125}{T_w} q^{1.33}}$$

where Y = ½D_o = 0.5

D_{50} = 0.06 feet Use 6 inches

$$\boxed{D_{50} = \frac{0.0082}{T_w} q^{1.33}}$$

where Y = D_o = 1

D_{50} = 0.04 feet

Y = depth of scour hole below culvert invert

The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to possible problems with mosquito breeding.

Riprap lining shall have a thickness of at least three times the D_{50} size if a filter layer is not used and a thickness of at least two times the D_{50} size is a filter layer is used. A mimimum thickness shall be 8 inches

Liner not used = $3D_{50}$ = 1.50 feet
Liner used = $2D_{50}$ = 1.00 feet < 0.66 feet **Lining Thickness = 1.00 feet**

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Project:

Scour Hole Design - FES-104
Data Center at Bell Works

HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

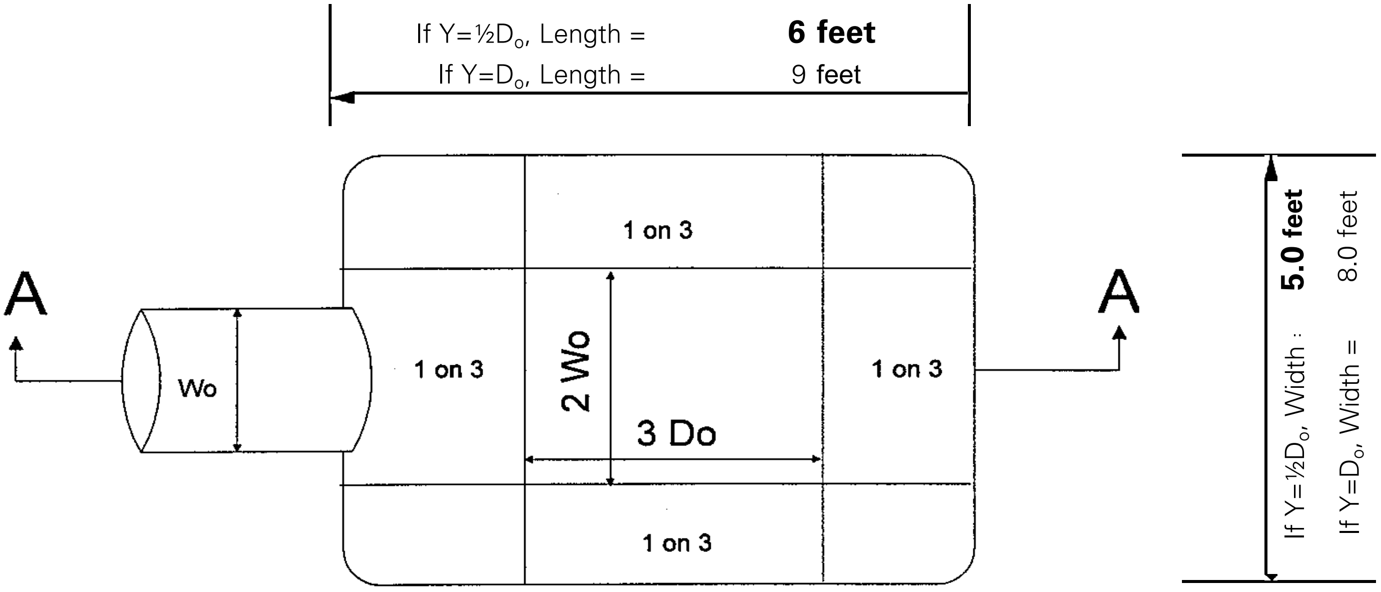
Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	1 of 2

Preformed Scour Hole Dimensions

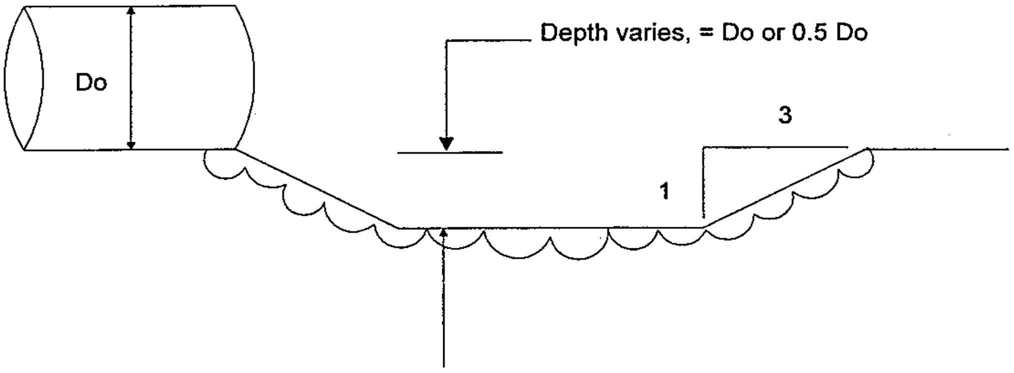
$2W_o$ =	**2 feet**
$3D_o$ =	**3 feet**
Y (Depth) =	**0.5 feet**

If Y=½D_o, Length = **6 feet**
If Y=D_o, Length = 9 feet

If Y=½D_o, Width : **5.0 feet**
If Y=D_o, Width = 8.0 feet


A
A
1 on 3
Wo
1 on 3
2 Wo
3 Do
1 on 3
1 on 3

PLAN


Do
Depth varies, = Do or 0.5 Do
3
1

Section A - A

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Project:
Scour Hole Design - FES-104
Data Center at Bell Works
HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	2 of 2

Based on "Standards for Soil Erosion and Sediment Control in New Jersey," dated 2014

TABLE 12-1 ALLOWABLE VELOCITIES FOR VARIOUS SOILS

SOIL TEXTURE	ALLOWABLE VELOCITY (ft./sec.)
1. Sand	1.8
2. Sandy Loam	2.5
3. Silt loam (also high lime clay), loam	3.0
4. Sandy clay loam	3.5
5. Clay loam	4.0
6. Clay, fine gravel, gradded loam to gravel	5.0
7. Cobbles	5.5
8. Shale (non-weathered)	6.0

Soil type where outfall is located = 1 (Note: Select number designating soil texture above)
allowable velocity = 1.8 ft/sec
v (velocity) = 2.35 ft/sec
Scour Hole required? **1** (1 = yes, 0 = no)

Given:

D_o (max inside height) = 1.25 feet
W_o (max inside width) = 1.25 feet
Q (discharge) = 2.89 cfs (100-year storm)
*q (unit discharge, = Q/W_o) = 2.3 cfs / foot
** T_w (tail water) = 0.84 feet

* for the 100 year storm
** for areas where T_w cannot be computed, use $T_w = 0.2\ D_o$. For discharge
into detention basins, Tw shall equal the 2 year "current" storm elevation in the basin.

Preformed Scour Hole Median Stone Diameter and Riprap Lining Thickness

Preformed scour holes may be utilized, where conditions dictate the impractical use of flat aprons. The median stone diameter, D50, in feet, shall be determined from the following formulas:

$$\boxed{D_{50} = \frac{0.0125}{T_w} q^{1.33}}$$

where Y = ½D_o = 0.625

D_{50} = 0.05 feet **Use 6 inches**

$$\boxed{D_{50} = \frac{0.0082}{T_w} q^{1.33}}$$

where Y = D_o = 1.25

D_{50} = 0.03 feet

Y = depth of scour hole below culvert invert

The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to possible problems with mosquito breeding.

Riprap lining shall have a thickness of at least three times the D_{50} size if a filter layer is not used and a thickness of at least two times the D_{50} size is a filter layer is used. A mimimum thickness shall be 8 inches

Liner not used = $3D_{50}$ = 1.50 feet
Liner used = $2D_{50}$ = 1.00 feet < 0.66 feet **Lining Thickness = 1.00 feet**

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Project:

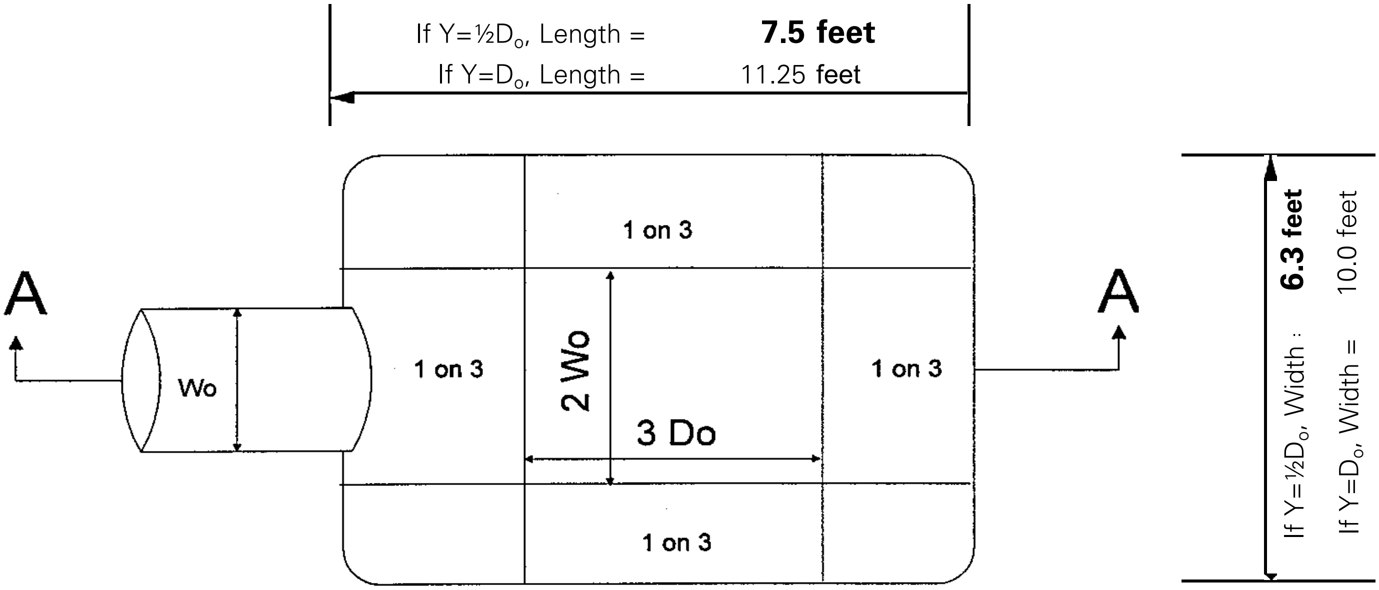
Scour Hole Design - FES-105
Data Center at Bell Works

HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

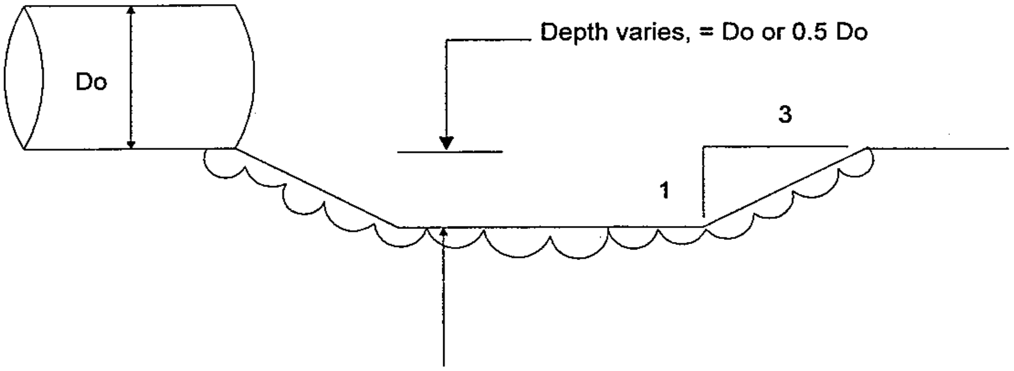
Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	1 of 2

Preformed Scour Hole Dimensions

$2W_o$ = 2.5 feet
$3D_o$ = 3.75 feet
Y (Depth) = 0.625 feet


If $Y=½D_o$, Length = **7.5 feet**
If $Y=D_o$, Length = 11.25 feet
If $Y=½D_o$, Width : **6.3 feet**
If $Y=D_o$, Width = 10.0 feet
A
A
Wo
1 on 3
1 on 3
1 on 3
1 on 3
2 Wo
3 Do

PLAN


Do
Depth varies, = Do or 0.5 Do
3
1

Section A - A

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Project:
Scour Hole Design - FES-105
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HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	2 of 2

Based on "Standards for Soil Erosion and Sediment Control in New Jersey," dated 2014

TABLE 12-1 ALLOWABLE VELOCITIES FOR VARIOUS SOILS

SOIL TEXTURE	ALLOWABLE VELOCITY (ft./sec.)
1. Sand	1.8
2. Sandy Loam	2.5
3. Silt loam (also high lime clay), loam	3.0
4. Sandy clay loam	3.5
5. Clay loam	4.0
6. Clay, fine gravel, gradded loam to gravel	5.0
7. Cobbles	5.5
8. Shale (non-weathered)	6.0

Soil type where outfall is located = 1 (Note: Select number designating soil texture above)
allowable velocity = 1.8 ft/sec
v (velocity) = 1.85 ft/sec
Scour Hole required? **1** (1 = yes, 0 = no)

Given:

D_o (max inside height) = 2 feet
W_o (max inside width) = 2 feet
Q (discharge) = 15.5 cfs (100-year storm)
*q (unit discharge, = Q/W_o) = 7.8 cfs / foot
** T_w (tail water) = 0.84 feet

* for the 100 year storm
** for areas where T_w cannot be computed, use $T_w = 0.2\ D_o$. For discharge into detention basins, Tw shall equal the 2 year "current" storm elevation in the basin.

Preformed Scour Hole Median Stone Diameter and Riprap Lining Thickness

Preformed scour holes may be utilized, where conditions dictate the impractical use of flat aprons.
The median stone diameter, D50, in feet, shall be determined from the following formulas:

$$\boxed{D_{50} = \frac{0.0125}{T_w} q^{1.33}}$$

where Y = ½D_o = 1 **D_{50} = 0.23 feet Use 6 inches**

$$\boxed{D_{50} = \frac{0.0082}{T_w} q^{1.33}}$$

where Y = D_o = 2 D_{50} = 0.15 feet

Y = depth of scour hole below culvert invert

The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to possible problems with mosquito breeding.

Riprap lining shall have a thickness of at least three times the D_{50} size if a filter layer is not used and a thickness of at least two times the D_{50} size is a filter layer is used. A mimimum thickness shall be 8 inches

Liner not used = $3D_{50}$ = 1.50 feet
Liner used = $2D_{50}$ = 1.00 feet < 0.66 feet **Lining Thickness = 1.00 feet**

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Project:

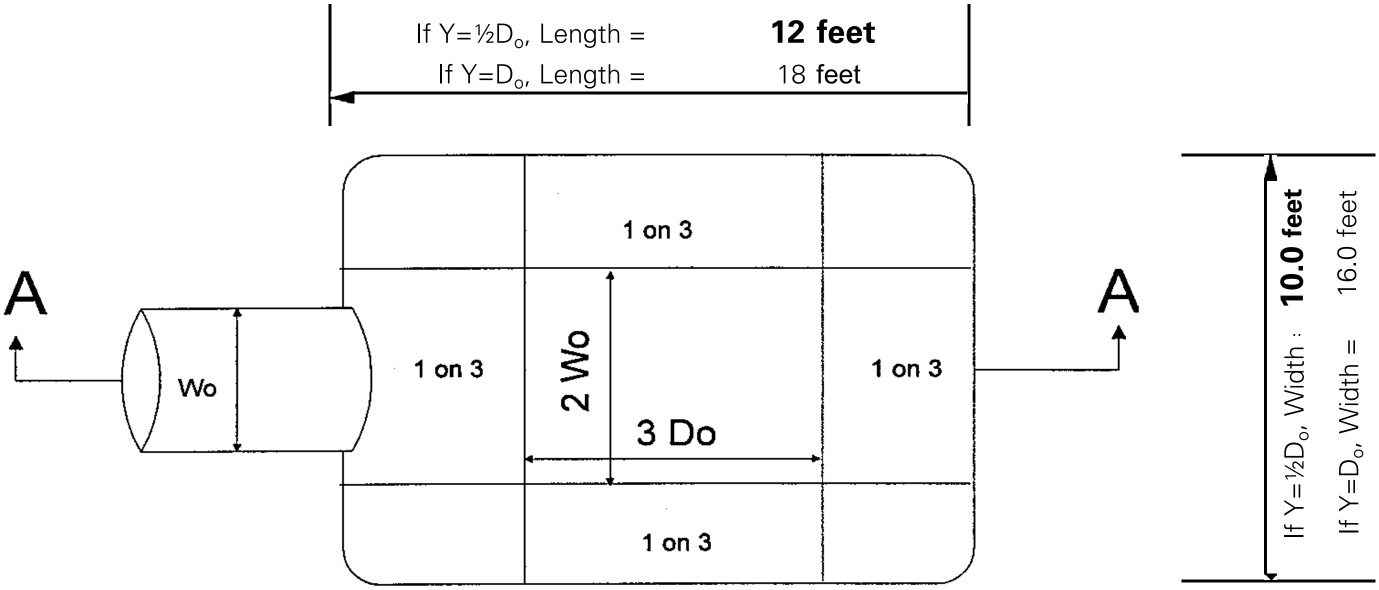
Scour Hole Design - FES-106
Data Center at Bell Works

HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	1 of 2

Preformed Scour Hole Dimensions

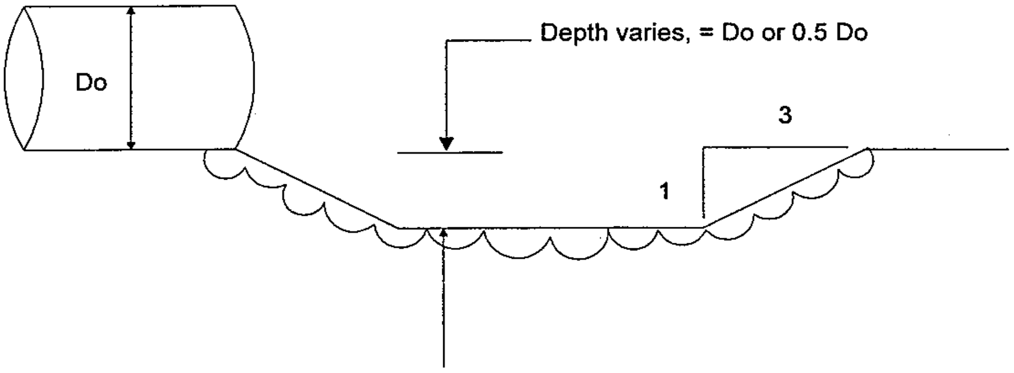
$2W_o$ = 4 feet
$3D_o$ = 6 feet
Y (Depth) = 1 feet


If Y=½D_o, Length = **12 feet**
If Y=D_o, Length = 18 feet

If Y=½D_o, Width : **10.0 feet**
If Y=D_o, Width = 16.0 feet

A
A
Wo
1 on 3
1 on 3
1 on 3
1 on 3
2 Wo
3 Do

PLAN



Do
Depth varies, = Do or 0.5 Do
3
1

Section A - A

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Project:

Scour Hole Design - FES-106
Data Center at Bell Works
HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	2 of 2

Based on "Standards for Soil Erosion and Sediment Control in New Jersey," dated 2014

TABLE 12-1 ALLOWABLE VELOCITIES FOR VARIOUS SOILS

SOIL TEXTURE	ALLOWABLE VELOCITY (ft./sec.)
1. Sand	1.8
2. Sandy Loam	2.5
3. Silt loam (also high lime clay), loam	3.0
4. Sandy clay loam	3.5
5. Clay loam	4.0
6. Clay, fine gravel, gradded loam to gravel	5.0
7. Cobbles	5.5
8. Shale (non-weathered)	6.0

Soil type where outfall is located = 1 (Note: Select number designating soil texture above)
allowable velocity = 1.8 ft/sec
v (velocity) = 8.72 ft/sec
Scour Hole required? **1** (1 = yes, 0 = no)

Given:

D_o (max inside height) = 1.5 feet
W_o (max inside width) = 1.5 feet
Q (discharge) = 8.17 cfs (100-year storm)
*q (unit discharge, = Q/W_o) = 5.4 cfs / foot
** T_w (tail water) = 0.30 feet

* for the 100 year storm
** for areas where T_w cannot be computed, use $T_w = 0.2\ D_o$. For discharge
into detention basins, Tw shall equal the 2 year "current" storm elevation in the basin.

Preformed Scour Hole Median Stone Diameter and Riprap Lining Thickness

Preformed scour holes may be utilized, where conditions dictate the impractical use of flat aprons. The median stone diameter, D50, in feet, shall be determined from the following formulas:

$$\boxed{D_{50} = \frac{0.0125}{T_w} q^{1.33}}$$

where Y = ½D_o = 0.75

D_{50} = 0.40 feet Use 6 inches

$$\boxed{D_{50} = \frac{0.0082}{T_w} q^{1.33}}$$

where Y = D_o = 1.5

D_{50} = 0.26 feet

Y = depth of scour hole below culvert invert

The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to possible problems with mosquito breeding.

Riprap lining shall have a thickness of at least three times the D_{50} size if a filter layer is not used and a thickness of at least two times the D_{50} size is a filter layer is used. A mimimum thickness shall be 8 inches

Liner not used = $3D_{50}$ = 1.50 feet
Liner used = $2D_{50}$ = 1.00 feet < 0.66 feet **Lining Thickness = 1.00 feet**

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Project:

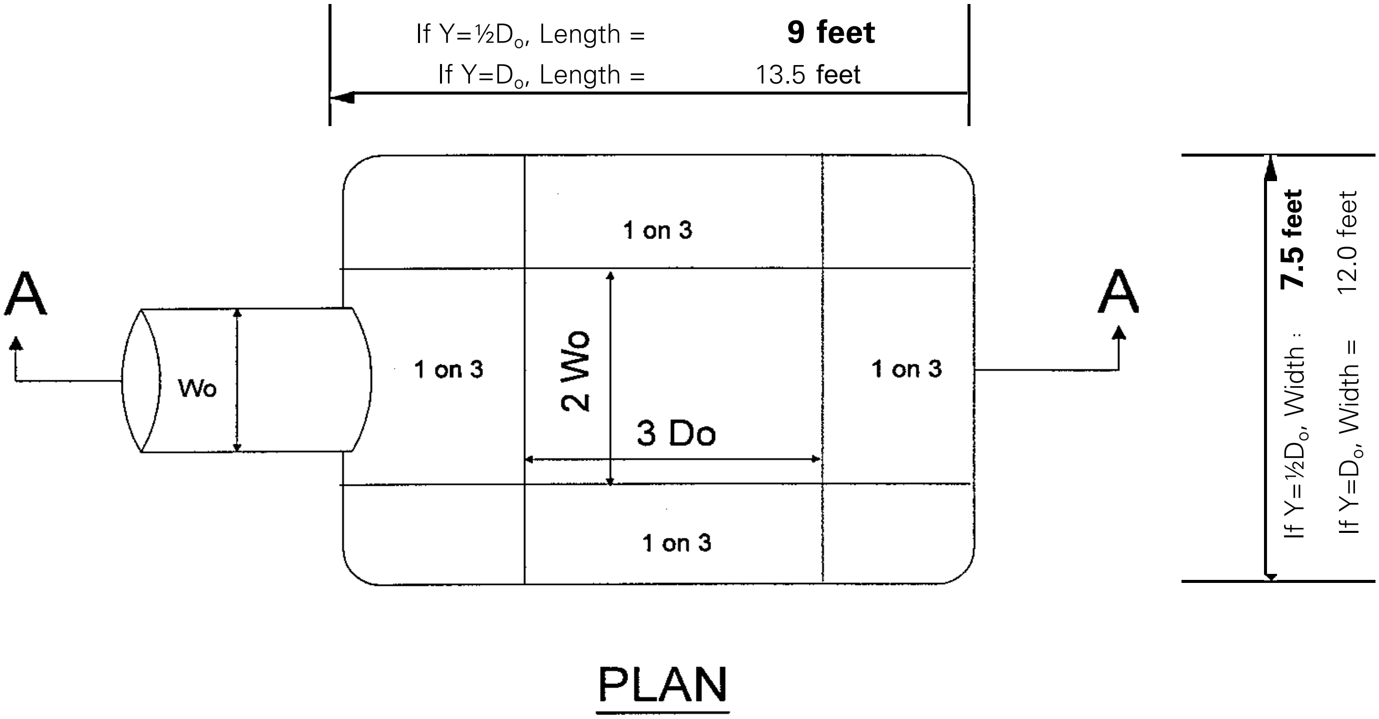
Scour Hole Design - HW-101
Data Center at Bell Works

HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

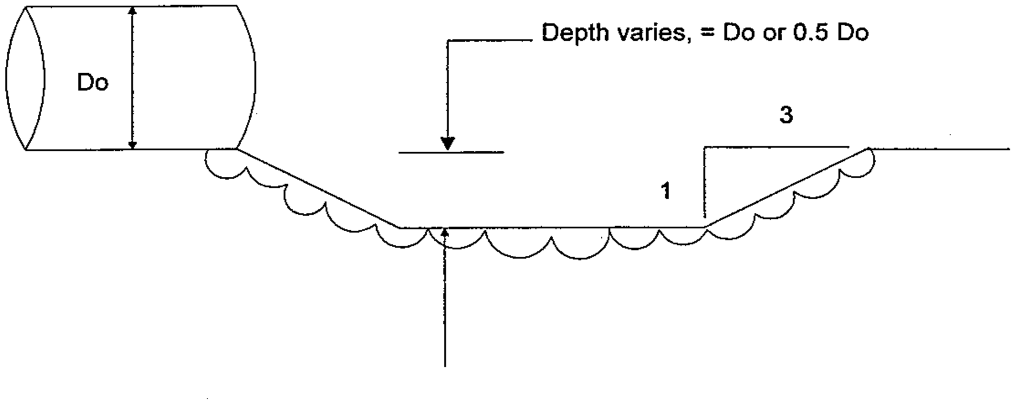
Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	1 of 2

Preformed Scour Hole Dimensions

$2W_o$ = 3 feet
$3D_o$ = 4.5 feet
Y (Depth) = 0.75 feet


If $Y=½D_o$, Length = **9 feet**
If $Y=D_o$, Length = 13.5 feet
If $Y=½D_o$, Width : **7.5 feet**
If $Y=D_o$, Width = 12.0 feet
A
A
Wo
1 on 3
1 on 3
1 on 3
1 on 3
2 Wo
3 Do

PLAN


Do
Depth varies, = Do or 0.5 Do
3
1

Section A - A

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Project:

Scour Hole Design - HW-101
Data Center at Bell Works
HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	2 of 2

Based on "Standards for Soil Erosion and Sediment Control in New Jersey," dated 2014

TABLE 12-1 ALLOWABLE VELOCITIES FOR VARIOUS SOILS

SOIL TEXTURE	ALLOWABLE VELOCITY (ft./sec.)
1. Sand	1.8
2. Sandy Loam	2.5
3. Silt loam (also high lime clay), loam	3.0
4. Sandy clay loam	3.5
5. Clay loam	4.0
6. Clay, fine gravel, gradded loam to gravel	5.0
7. Cobbles	5.5
8. Shale (non-weathered)	6.0

Soil type where outfall is located = 1 (Note: Select number designating soil texture above)
allowable velocity = 1.8 ft/sec
v (velocity) = 3.15 ft/sec
Scour Hole required? **1** (1 = yes, 0 = no)

Given:

D_o (max inside height) = 2 feet
W_o (max inside width) = 2 feet
Q (discharge) = 9.37 cfs (100-year storm)
*q (unit discharge, = Q/W_o) = 4.7 cfs / foot
** T_w (tail water) = 0.40 feet

* for the 100 year storm
** for areas where T_w cannot be computed, use T_w = 0.2 D_o. For discharge into detention basins, Tw shall equal the 2 year "current" storm elevation in the basin.

Preformed Scour Hole Median Stone Diameter and Riprap Lining Thickness

Preformed scour holes may be utilized, where conditions dictate the impractical use of flat aprons. The median stone diameter, D50, in feet, shall be determined from the following formulas:

$$\boxed{D_{50} = \frac{0.0125}{T_w} q^{1.33}}$$

where Y = ½D_o = 1

D_{50} = 0.24 feet **Use 6 inches**

$$\boxed{D_{50} = \frac{0.0082}{T_w} q^{1.33}}$$

where Y = D_o = 2

D_{50} = 0.16 feet

Y = depth of scour hole below culvert invert

The use of scour holes shall comply with county or local ordinances which would restrict the use of such devices due to possible problems with mosquito breeding.

Riprap lining shall have a thickness of at least three times the D_{50} size if a filter layer is not used and a thickness of at least two times the D_{50} size is a filter layer is used. A mimimum thickness shall be 8 inches

Liner not used = $3D_{50}$ = 1.50 feet
Liner used = $2D_{50}$ = 1.00 feet < 0.66 feet **Lining Thickness = 1.00 feet**

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Project:

Scour Hole Design - HW-102
Data Center at Bell Works

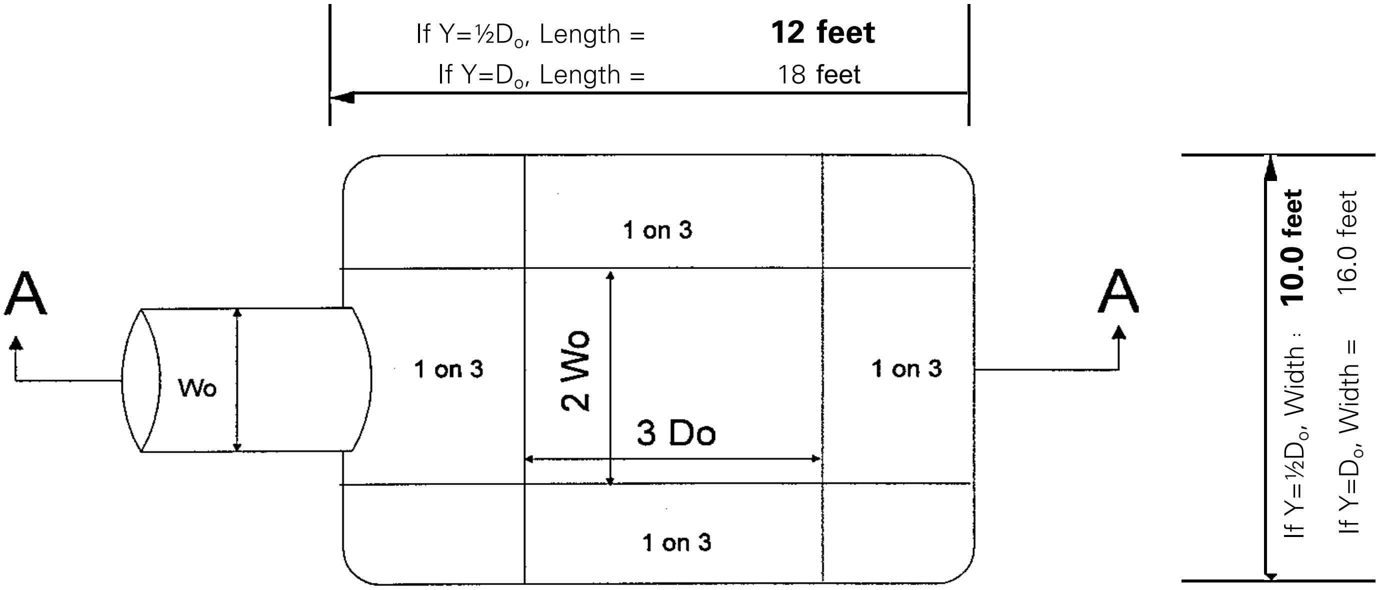
HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	1 of 2

Preformed Scour Hole Dimensions

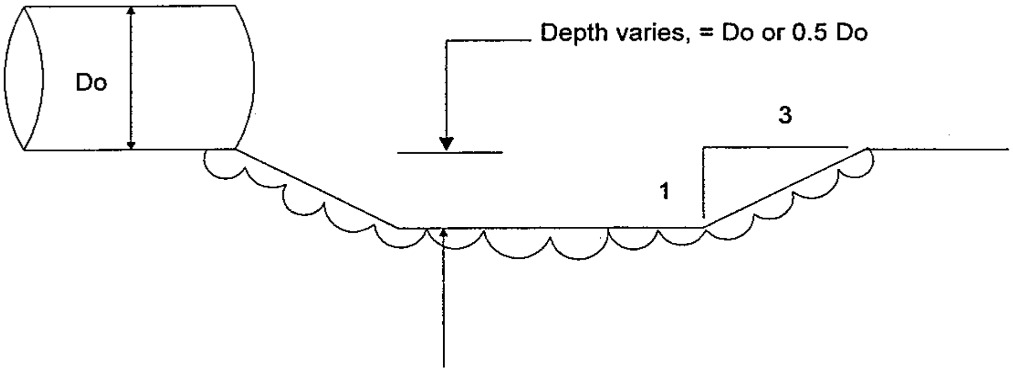
$2W_o$ = 4 feet
$3D_o$ = 6 feet
Y (Depth) = 1 feet

If $Y=½D_o$, Length = **12 feet**
If $Y=D_o$, Length = 18 feet


A
A
Wo
1 on 3
1 on 3
1 on 3
1 on 3
2 Wo
3 Do

If $Y=½D_o$, Width : **10.0 feet**
If $Y=D_o$, Width = 16.0 feet

PLAN


Do
Depth varies, = Do or 0.5 Do
3
1

Section A - A

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Project:
Scour Hole Design - HW-102
Data Center at Bell Works
HOLMDEL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

Project No.	Date:	By:	Ckd:	Sheet. No.
102054601	7/23/2026	BMW	LDS	2 of 2

APPENDIX F

Geotechnical Investigation Memorandum

LANGAN

Memorandum

300 Kimball Drive Parsippany, NJ 07054 T: 973.560.4900 F: 973.560.4901

To: George Kolovos (Terna)

From: Victoria Rhodes

Info: Lenny Savino, Bryan Wild (Langan)

Date: 24 July 2026

Re: Stormwater Investigation Results
Data Center at Bell Works
Holmdel, New Jersey
Langan Project No.: 102054601

This memorandum presents the results of the field investigation performed by Langan Engineering and Environmental Services, LLC (Langan) for the proposed stormwater management systems at Data Center at Bell Works project site in Holmdel, New Jersey. Unless noted otherwise, the elevations given in this memorandum are referenced to the elevations provided in the drawing entitled "Boundary & Topographic Survey" prepared by Langan dated 7 April 2026, which refers to the North American Vertical Datum of 1988 (NAVD88).

PROJECT DESCRIPTION

The project site is located in the southwestern portion of the Bell Works facility in Holmdel, Monmouth County, New Jersey. The site is bound by wooded areas to the west and south, a substation to the north, and the Bell Works facility to the east. The site is currently occupied by a one-story building in the central portion of the site, a silo and paved storage areas in the northern portion of the site and a one-story storage building and paved areas in the southern portion of the site. The site primarily consists of paved surfaces.

PROPOSED DEVELOPMENT

Based on the plan titled "Test Pit Location Plan" prepared by Langan dated 18 April 2026, we understand that the proposed development will include the following:

- Construction of one two-story data center with 53,860 square-feet (sq-ft) footprint.
- Construction of a generator yard.
- Construction of stormwater management areas as summarized in the table below.

Basin ID	Proposed Bottom of BMP Underdrain Stone
Basin 1	El 99.5
Basin 2	El 99
Basin 3	El 99

STORMWATER INVESTIGATION

The field stormwater investigation included excavating exploratory profile test pits within proposed basin areas under full-time supervision by Langan. The locations of all the profile test pits are shown on Figure 1. Logs of the profile test pits are provided in Appendix A. A summary of the profile test pits is provided in Table 1.

Test Pits

Six exploratory test pits were excavated in April 2026 by Clear Ground Development using a Hitachi Zaxis 135 US Excavator to determine depths to seasonal high groundwater levels. Profile test pits extended approximately 4 ft to 17.5 ft below existing surface grades. Upon completion, the profile test pits were backfilled with excavated materials and the backfill was lightly compacted with the excavator bucket.

SUBSURFACE CONDITIONS

The generalized subsurface conditions consisted of asphalt pavement and surficial fill materials underlain by natural silty sand and clayey sand. Detailed descriptions of the subsurface conditions and groundwater observations are summarized below.

Surficial Materials and Fill

A 2-inch-thick asphalt pavement was encountered at the surface in all test pits, excluding TP-3 and TP-6.

A 0.5-ft-thick to 1-ft-thick fill layer was encountered immediately below the asphalt in all test pits, excluding TP-1. The fill generally consisted of poorly graded gravel or sand with varying amounts of silt and gravel. Fill materials were typically dark gray to brown and moist.

In test pit TP-1, a concrete slab was encountered throughout the base of the 4 ft by 9 ft test pit at 4 ft below existing surface grade.

Sand

Silty sand was encountered in all test pits below the surficial and fill materials. These soils were generally described as light brown, orange, or gray, fine to coarse silty sand with varying amounts of gravel and clay. In test pits TP-3, TP-4 and TP-6 portions of the sand were described as clayey sand with varying amounts of silt.

Signs of Seasonal High Groundwater Level

Mottling and water seepage were observed in all profile test pits excluding TP-1, which was terminated at 4 ft due to a concrete obstruction. The seasonal high groundwater level was determined based on depth to mottling observed in the profile test pits. The determined seasonal high groundwater levels are provided in Table 1.

CLOSURE

This memorandum provided the results of the stormwater investigation performed by Langan for the proposed stormwater management system at the project site. If you have any questions, please call.

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TABLES

Table 1 Summary of Profile Test Pits

102054601
Data Center at Bellworks
Holmdel, NJ

7/24/2026

TABLE 1 - SUMMARY OF PROFILE TEST PITS

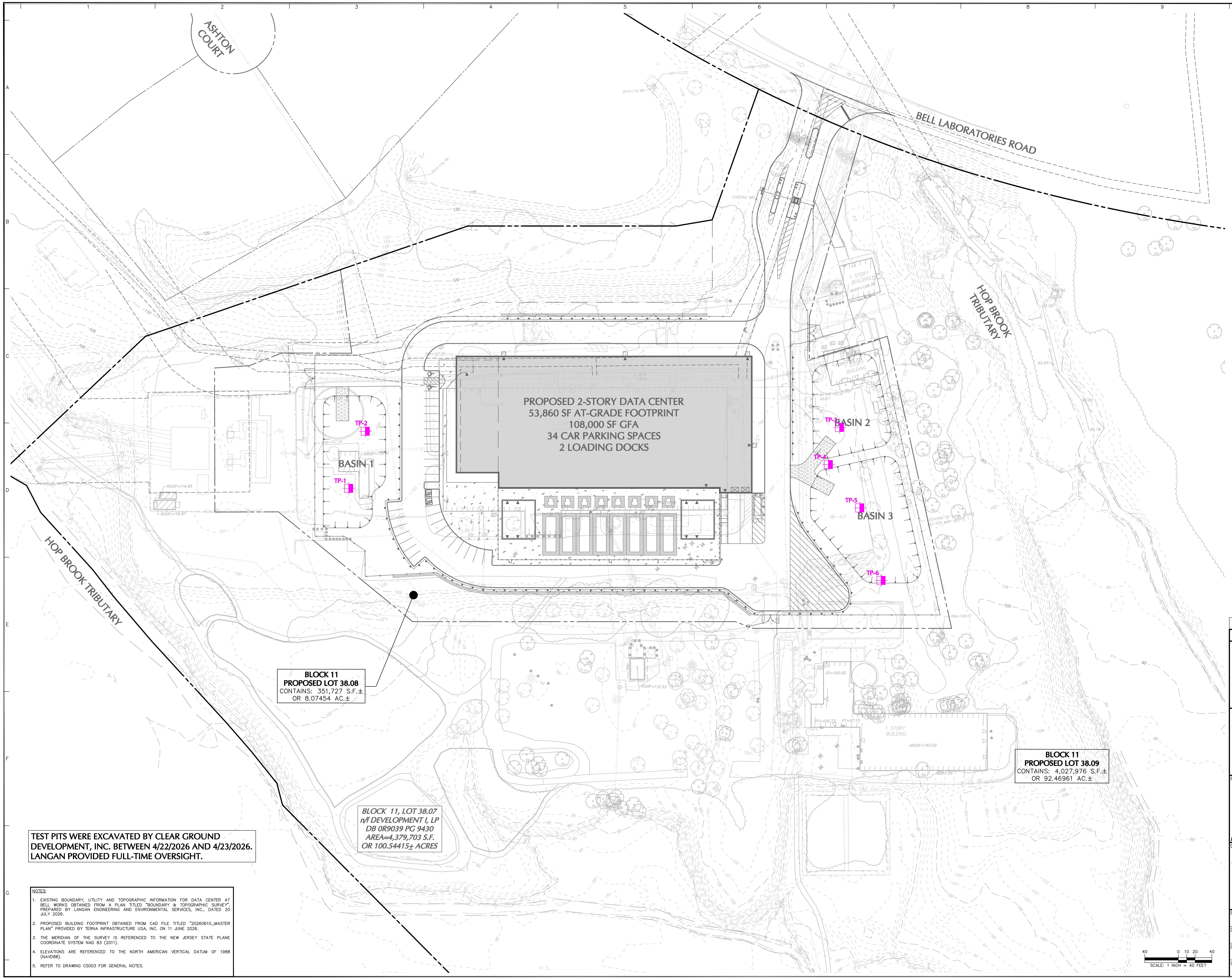
Profile Test ID	Basin ID	Profile Pit Completion Date	Time of Excavation	Existing Surface Grade	Proposed Bottom of BMP	Approximate Profile Pit Bottom		Approximate Observed Top of Soil Mottling Layer		Approximate Bottom of Observed Soil Mottling Layer		Observed Groundwater Level or Water Seepage		Determined Seasonal High Groundwater		Remarks
				(el)	(el)	(ft)	(el)	(ft)	(el)	(ft)	(el)	(ft)	(el)	(ft)	(el)	
TP-1	**Basin 1**	**4/23/2026**	**10:45**	**107**	**99.5**	**4**	**103**	**-**	**NE**	**-**	**NE**	**-**	**NE**	**-**	**NE**	**Test pit terminated at 4 ft - concrete slab was encountered.**
TP-2	**Basin 1**	**4/23/2026**	**9:25**	**108**	**99.5**	**15.5**	**92.5**	**11.5**	**96.5**	**15**	**93**	**15**	**93**	**11.5**	**96.5**	
TP-3	**Basin 2**	**4/23/2026**	**8:00**	**105.5**	**99**	**13**	**92.5**	**7.5**	**98**	**13**	**92.5**	**12.5**	**93**	**7.5**	**98.0**	
TP-4	**Basin 2**	**4/22/2026**	**11:30**	**106**	**99**	**13.5**	**92.5**	**11**	**95**	**11**	**95**	**12.5**	**93.5**	**11.0**	**95.0**	
TP-5	**Basin 3**	**4/22/2026**	**13:10**	**105.3**	**99**	**12.5**	**92.8**	**7.5**	**97.8**	**7.5**	**97.8**	**11.5**	**93.8**	**7.5**	**97.8**	
TP-6	**Basin 3**	**4/22/2026**	**14:05**	**105**	**99**	**17.5**	**87.5**	**7**	**98**	**16.5**	**88.5**	**17**	**88**	**7.0**	**98.0**	

NOTES

1 Refer to Appendix A for profile test pit logs.
2 The elevations and depths provided in the table are approximate.

FIGURES

Figure 1 Test Pit Location Plan


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
ASHTON COURT
BELL LABORATORIES ROAD
NJ NAD 83 (2011)
HOP BROOK TRIBUTARY
HOP BROOK TRIBUTARY
PROPOSED 2-STORY DATA CENTER
53,860 SF AT-GRADE FOOTPRINT
108,000 SF GFA
34 CAR PARKING SPACES
2 LOADING DOCKS
BASIN 1
BASIN 2
BASIN 3
TP-1
TP-2
TP-3
TP-4
TP-5
TP-6
1 STORY BUILDING
1 STORY BUILDING
SCALE: 1 INCH = 40 FEET
40
0
10
20
40

BLOCK 11
PROPOSED LOT 38.08
CONTAINS: 351,727 S.F.±
OR 8.07454 AC.±

BLOCK 11, LOT 38.07
n/f DEVELOPMENT I, LP
DB 0R9039 PG 9430
AREA=4,379,703 S.F.
OR 100.54415± ACRES

BLOCK 11
PROPOSED LOT 38.09
CONTAINS: 4,027,976 S.F.±
OR 92.46961 AC.±

TEST PITS WERE EXCAVATED BY CLEAR GROUND DEVELOPMENT, INC. BETWEEN 4/22/2026 AND 4/23/2026. LANGAN PROVIDED FULL-TIME OVERSIGHT.

NOTES:

1. EXISTING BOUNDARY, UTILITY AND TOPOGRAPHIC INFORMATION FOR DATA CENTER AT BELL WORKS OBTAINED FROM A PLAN TITLED "BOUNDARY & TOPOGRAPHIC SURVEY", PREPARED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC., DATED 20 JULY 2026.
2. PROPOSED BUILDING FOOTPRINT OBTAINED FROM CAD FILE TITLED "20260610_MASTER PLAN" PROVIDED BY TERNA INFRASTRUCTURE USA, INC. ON 11 JUNE 2026.
3. THE MERIDIAN OF THE SURVEY IS REFERENCED TO THE NEW JERSEY STATE PLANE COORDINATE SYSTEM NAD 83 (2011).
4. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
5. REFER TO DRAWING CS003 FOR GENERAL NOTES.

LEGEND

— — —	PROPERTY LINE
TP-2 ▣	APPROXIMATE STORMWATER TEST PIT LOCATION

LANGAN

Project No. 102054601

Date	Description	No.

Revisions

LANGAN
Langan Engineering and
Environmental Services, LLC

300 Kimball Drive
Parsippany, NJ 07054

T: 973.560.4900 F: 973.560.4901 www.langan.com
NJ Certificate of Authorization No. 24GA27996400

Project

DATA CENTER AT BELL WORKS

BLOCK NO. 11, LOT NO. 11 38.07
A PORTION OF BLOCK NO. 11, LOT NO. 38.05
HOLMDEL TOWNSHIP
MONMOUTH COUNTY **NEW JERSEY**

Drawing Title

TEST PIT LOCATION PLAN

Project No. **102054601**	Drawing No. 1
Date **7/23/2026**	
Drawn By **BMW**	
Checked By **LDS**	

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APPENDIX A

LOGS OF PROFILE TEST PITS

LANGAN Log of Test Pit **TP-1** Sheet 1 of 1

Project Data Center at Bell Works	Project No. 102054601	Date 4/23/2026
Location Holmdel , NJ	Elevation and Datum Approx. el. 107.0 (NAVD 88)	
Excavation Company Clear Ground Development, Inc.	Depth 4.0 ft	Water Level - First N/A ▽ Water Level - Completion N/A ▼
Excavation Equipment Hitachi Zaxis 135 Steel Track Excavator	Excavation Foreman Eladio	Field Engineer Paritosh Chataut

SYMBOL	Elev. (ft)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+107.0		0			
	+106.8	ASPHALT (2-inch thick)				Started excavation on 4/23/2026.
		SILTY SAND (SM) dark gray, moist, fine to coarse sand, some silt, trace fine to coarse gravel	1 2 3	S-1	GRAB	
	+103.0	End of Test Pit at 4.0ft.	4			Concrete slab encountered at 4 ft. Slab observed throughout the test pit of dimension 9 ft × 4 ft. Test pit stopped at 4 ft, and backfilled with excavated soil. stone placed on the surface. No water seepage encountered.
			5 6 7 8 9 10 11 12 13 14 15 16 17 18			

LANGAN Log of Test Pit **TP-2** Sheet 1 of 1

Project Data Center at Bell Works	Project No. 102054601	Date 4/24/2026
Location Holmdel , NJ	Elevation and Datum Approx. el. 108.0 (NAVD 88)	
Excavation Company Clear Ground Development, Inc.	Depth 15.5 ft	Water Level - First N/A ▽
		Water Level - Completion 15.0 ▼
Excavation Equipment Hitachi Zaxis 135 Steel Track Excavator	Excavation Foreman Eladio	Field Engineer Paritosh Chataut

Elev. (ft)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
+108.0		0			
+107.8	ASPHALT (2-inch thick)		S-1	GRAB	Started excavation on 4/23/2026.
+107.5	POORLY GRADED GRAVEL WITH SAND (GP) [FILL] dark gray, moist, fine to coarse gravel				Separation membrane observed at 6 inches bgs.
	SILTY SAND (SM) light brown, moist, fine to coarse sand, little silt, trace gravel	1	S-2	GRAB	
	SILTY SAND (SM) light orange, moist, fine to coarse sand, some silt, trace fine to coarse gravel, trace clay	2	S-3	GRAB	
	SILTY SAND (SM) light orange, moist, fine to coarse sand, some silt, trace fine to coarse gravel	3 4 5	S-4	GRAB	
	SILTY SAND (SM) light gray, moist, fine to coarse sand, some silt, trace clay	6	S-5	GRAB	
	SILTY SAND (SM) light orange, moist, fine to coarse sand, some silt	7 8 9 10 11 12 13 14	S-6	GRAB	Gray motlling at 11.5 ft. Gray motlling at 13.5 ft.
+92.5	▼ SILTY SAND (SM) light orange, moist to wet, fine to coarse sand, some silt, trace fine to coarse gravel	15	S-7	GRAB	Ground water observed at 15 ft. Gray motlling observed at 15 ft. Test pit completed at 15.5 ft. Backfilled with excavated soil. Stone placed on the surface.
	End of Test Pit at 15.5ft.	16 17 18			

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Log of Test Pit **TP-3**

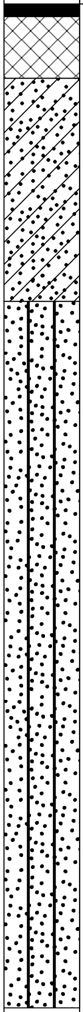
Sheet 1 of 1

Project Data Center at Bell Works	Project No. 102054601	Date 4/23/2026
Location Holmdel , NJ	Elevation and Datum Approx. el. 105.5 (NAVD 88)	
Excavation Company Clear Ground Development, Inc.	Depth 13.0 ft	Water Level - First N/A ▽
		Water Level - Completion 12.5 ▼
Excavation Equipment Hitachi Zaxis 135 Steel Track Excavator	Excavation Foreman Eladio	Field Engineer Paritosh Chataut

SYMBOL	Elev. (ft)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+105.5					
▨	+105.3	POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) [FILL] dark gray, moist, fine to coarse gravel, few silt, fine to coarse sand, Landscaping gravel	0	S-1 S-2	GRAB GRAB	Started excavation on 4/23/2026.
▨	+104.5	SILTY SAND (SM) [FILL] dark gray, moist, fine to coarse sand, little silt, trace fine to coarse gravel	1	S-3	GRAB	Concrete structure observed 1 ft bgs at the northern wall.
▨		CLAYEY SAND (SC) light orange, moist, fine to medium sand, some clay	2			
⁘	+99.5	SILTY SAND (SM) light orange, moist, fine to medium sand, some silt	6	S-4	GRAB	Light gray motlling observed at 7.5 ft.
		▼	12.5			Ground water observed at 12.5 ft.
	+92.5	SILTY SAND WITH GRAVEL (SM) light orange, wet, fine to coarse sand, little silt, little fine to coarse gravel		S-5	GRAB	Test pit completed on 13 ft. Backfilled with excavated soil. stones placed on the surface.
		End of Test Pit at 13.0ft.	13			

LANGAN Log of Test Pit **TP-4** Sheet 1 of 1

Project Data Center at Bell Works	Project No. 102054601	Date 4/22/2026	
Location Holmdel , NJ	Elevation and Datum Approx. el. 106.0 (NAVD 88)		
Excavation Company Clear Ground Development, Inc.	Depth 13.5 ft	Water Level - First N/A ▽	Water Level - Completion 12.5 ▼
Excavation Equipment Hitachi Zaxis 135 Steel Track Excavator	Excavation Foreman Eladio	Field Engineer Paritosh Chataut	



SYMBOL	Elev. (ft)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+106.0					
	+105.8	ASPHALT (2-inch thick)	0			Started excavation on 4/22/2026.
	+105.0	POORLY GRADED GRAVEL WITH SAND (GP) [FILL] grayish brown,, moist fine to coarse gravel, little fine to coarse sand		S-1	GRAB	
		CLAYEY SAND (SC) gray, moist, fine to coarse sand, trace fine to coarse gravel	1	S-2	GRAB	Separation membrane observed at 1 ft bgs.
		CLAYEY SAND (SC) light orange, moist. fine to medium sand, some clay	2 3	S-3	GRAB	
	+102.0	SILTY SAND (SM) light orange, fine to medium sand, some silt	4 5 6 7 8 9	S-4	GRAB	
		SILTY SAND (SM) light gray, moist, fine to medium sand, some silt	10 11 12	S-5	GRAB	Orange motlling at 11 ft.
		▼ SILTY SAND (SM) light gray, wet, fine to coarse sand, some silt, trace gravel	13	S-6	GRAB	Ground water observed 12.5 ft.
	+92.5	End of Test Pit at 13.5ft.	14 15 16 17 18			Test pit completed at 13.5 ft. Test pit backfilled with Excavated materials upon completion and stone placed over the test pit.

LANGAN **Log of Test Pit TP-5** Sheet 1 of 1

Project Data Center at Bell Works		Project No. 102054601		Date 4/22/2026
Location Holmdel , NJ		Elevation and Datum Approx. el. 105.3 (NAVD 88)		
Excavation Company Clear Ground Development, Inc.	Depth 12.5 ft		Water Level - First N/A ▽	Water Level - Completion 11.5 ▼
Excavation Equipment Hitachi Zaxis 135 Steel Track Excavator		Excavation Foreman Eladio		Field Engineer Paritosh Chataut

SYMBOL	Elev. (ft)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
■	+105.3 +105.1	ASPHALT (2-inch thick)	0			Started excavation on 4/22/2026.
▨	+104.3	POORLY GRADED GRAVEL WITH SAND (GP) [FILL] light brown, moist, fine to coarse gravel, some fine to coarse sand	1	S-1	GRAB	
▨	+103.8	POORLY GRADED SAND WITH CLAY (SP-SC) [FILL] gray, moist, fine to coarse sand		S-2	GRAB	
⁙		SILTY SAND (SM) light orange, fine to coarse sand, some silt, trace fine to coarse gravel, clay	2 3 4 5 6 7	S-3	GRAB	
⁙		SILTY SAND (SM) light gray, moist, fine to medium sand, little silt	8 9 10 11	S-4	GRAB	Light gray motlling observed at 7.5 ft.
⁙	+92.8	▼ SILTY SAND WITH GRAVEL (SM) light-orangish gray, wet, fine to medium sand, little silt, little fine to coarse gravel	12	S-5	GRAB	Ground water observed at 11.5 ft.
		End of Test Pit at 12.5ft.	13 14 15 16 17 18			Test pit completed at 12.5 ft. Backfilled with excavated soil. stone placed on the surface.

LANGAN Log of Test Pit **TP-6** Sheet 1 of 1

Project Data Center at Bell Works	Project No. 102054601		Date 4/24/2026
Location Holmdel , NJ	Elevation and Datum Approx. el. 105.0 (NAVD 88)		
Excavation Company Clear Ground Development, Inc.	Depth 17.5 ft	Water Level - First N/A ▽	Water Level - Completion 17.0 ▼
Excavation Equipment Hitachi Zaxis 135 Steel Track Excavator	Excavation Foreman Eladio		Field Engineer Paritosh Chataut

SYMBOL	Elev. (ft)	DESCRIPTION	Depth Scale	SAMPLE Number	SAMPLE Type	REMARKS
	+105.0 +104.0	POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) [FILL] dark gray, moist, fine to coarse sand, little gravel, few silt	0	S-1	GRAB	Started excavation on 4/22/2026.
		SILTY SAND (SM) light gray, moist, fine to coarse sand, little silt, trace fine to coarse gravel	1	S-2	GRAB	Separation membrane observed at 1ft bgs.
	+93.5	SILTY SAND (SM) light orange, moist, fine to coarse sand, some silt, trace fine to coarse gravel	2 3 4 5 6 7 8 9 10 11	S-3	GRAB	Gray Motlling observed at 7 ft.
	+88.5	CLAYEY SAND (SC) gray, moist, fine to medium sand. Little clay.	12 13 14 15 16	S-4	GRAB	
	+87.5	POORLY GRADED SAND WITH CLAY (SP-SC) light gray, wet, fine to coarse sand. Few clay. ▼	17	S-5	GRAB	Orange motlling observed at 16.5 ft. Ground water observed at 17 ft. Test pit completed at 17.5 ft. Backfilled with Excavated soil.
		End of Test Pit at 17.5ft.	18			